

STIC SEARCH

HERTZOG 10/790,920

7.7.05

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=> file reg

FILE 'REGISTRY'

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FILE 'HCAPLUS'

L1 64 SEA VIERHEILIG ?/AU
L2 35516 SEA GUPTA ?/AU
L3 2126 SEA TURK ?/AU
L4 2 SEA L1 AND L2 AND L3

FILE 'REGISTRY'

E ZINC TITANATE/CN
L5 5 SEA ("ZINC TITANATE"/CN OR "ZINC TITANATE (ZN2TIO4)"/CN
OR "ZINC TITANATE (ZNTIO3)"/CN OR "ZINC TITANATE(IV)
(ZN2TI3O8)"/CN OR "ZINC TITANATE(IV) (ZN2TIO4)"/CN OR
"ZINC TITANATE(IV) (ZNTI2O5)"/CN OR "ZINC TITANATE(IV)
(ZNTIO3)"/CN OR "ZINC TITANIUM OXIDE (ZN2TI3O8)"/CN OR
"ZINC TITANIUM OXIDE (ZN2TIO4)"/CN OR "ZINC TITANIUM
OXIDE (ZNTIO3)"/CN)
L6 7924 SEA (M(L)O)/ELS (L) 2/ELC.SUB
L7 1 SEA 11104-48-6
L8 1 SEA 11137-98-7
L9 1 SEA 37275-76-6
L10 1 SEA 39354-08-0

FILE 'HCA'

L11 1140 SEA L5 OR (ZINC# OR ZN)(A)TITANATE# OR ZN2TIO4 OR ZNTIO3
OR ZN2TI3O8 OR ZNTI2O5
L12 929137 SEA L6 OR METAL####(W)(OXIDE# OR MONOXIDE# OR DIOXIDE#
OR TRIOXIDE# OR TETRAOXIDE# OR TETROXIDE# OR PENTAOXIDE#
OR PENTOXIDE#) OR MOX
L13 42385 SEA (L7 OR L8 OR L9 OR L10) OR ALUMINATE#
L14 67 SEA L11 AND L12 AND L13

FILE 'REGISTRY'

E CARBON DISULFIDE/CN
L15 1 SEA "CARBON DISULFIDE"/CN
E CARBONYL SULFIDE/CN
L16 1 SEA "CARBONYL SULFIDE"/CN
E HYDROGEN SULFIDE/CN
L17 1 SEA "HYDROGEN SULFIDE"/CN

D SCAN

FILE 'HCA' ENTERED AT 21:48:59 ON 07 JUL 2005

L18 168089 SEA (L15 OR L16 OR L17) OR (CARBON# OR CARBONYL# OR
HYDROGEN#) (A) (SULFIDE# OR DISULFIDE#) OR CS2 OR COS OR
CSO OR H2S

L19 953137 SEA DESULFUR? OR SULFUR? OR ?SULFID? OR SO2 OR SOX OR
S(2A) (CONTAIN? OR CONTG#)

L20 212838 SEA (FLUE# OR FUEL? OR OFF OR WASTE# OR COAL#) (2A) GAS##
OR FLUEGAS## OR FUELGAS## OR WASTEGAS## OR OFFGAS## OR
COALGAS##

L21 27 SEA L14 AND ((L18 OR L19 OR L20))

L22 40 SEA L14 NOT L21

L23 59 S L11 AND L12 AND ?ALUMINAT?

L24 25 S L23 AND (L18-L20)

L25 0 S L24 NOT L21

L26 0 S L23 NOT (L21 OR L22)

=> file hca

FILE 'HCA'

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=> d l21 1-27 cbib abs hitstr hitind

L21 ANSWER 1 OF 27 HCA COPYRIGHT 2005 ACS on STN

142:300640 Hydrorefining and/or hydroconversion catalyst comprising an active phase in the form of a solid solution **sulfide** of molybdenum and tungsten. Thomazeau, Cecile; Harle, Virginie; Cseri, Tivadar; Lacroix, Michel; Danot, Michel; Geantet, Christophe (Institut Francais du Petrole, Fr.). Eur. Pat. Appl. EP 1516667 A1 20050323, 18 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR. (French). CODEN: EPXXDW. APPLICATION: EP 2004-292182 20040910. PRIORITY: FR 2003-11032 20030919.

AB The title catalyst has formula MoxWl-xSy , where x is 0-1 and y is 1.4-2.6 and preferably a Group VIII element.

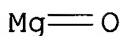
IT **1309-48-4**, Magnesia, uses **1312-81-8**, Lanthanum oxide **1314-23-4**, Zirconium oxide, uses **1344-28-1**, Alumina, uses **11104-48-6**, Calcium **aluminate 11137-98-7**, Magnesium **aluminate 12651-25-1**, Zinc **titanate 13463-67-7**, Titanium oxide, uses **37275-76-6**, Zinc **aluminate**

39354-08-0, Nickel aluminate

(hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (9CI) (CA INDEX NAME)

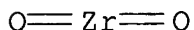


RN 1312-81-8 HCA

CN Lanthanum oxide (La₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)

RN 1344-28-1 HCA

CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 11104-48-6 HCA

CN Aluminum calcium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Ca	x	7440-70-2
Al	x	7429-90-5

RN 11137-98-7 HCA

CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

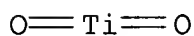
RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====

O		x		17778-80-2
Zn		x		7440-66-6
Ti		x		7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component		Ratio		Component Registry Number
=====	+	=====	+	=====
O		x		17778-80-2
Zn		x		7440-66-6
Al		x		7429-90-5

RN 39354-08-0 HCA
 CN Aluminum nickel oxide (9CI) (CA INDEX NAME)

Component		Ratio		Component Registry Number
=====	+	=====	+	=====
O		x		17778-80-2
Ni		x		7440-02-0
Al		x		7429-90-5

IC ICM B01J023-30
 ICS B01J023-888; B01J029-06; B01J035-00; B01J037-20; C10G045-08
 CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 25, 45, 67
 ST hydrorefining catalyst active phase solid soln **sulfide**
 molybdenum tungsten; hydroconversion catalyst active phase solid
 soln molybdenum tungsten **sulfide**
 IT Petroleum products
 (Fischer-Tropsch; hydrorefining and/or hydroconversion catalyst
 comprising an active phase in form of solid soln. **sulfide**
 of molybdenum and tungsten)
 IT Gas oils
 (HDS of; hydrorefining and/or hydroconversion catalyst comprising
 an active phase in form of solid soln. **sulfide** of
 molybdenum and tungsten)
 IT Zeolites (synthetic), uses
 (Nu-10, Nu-86, Nu-87, Nu-88; hydrorefining and/or hydroconversion
 catalyst comprising an active phase in form of solid soln.

- sulfide** of molybdenum and tungsten)
- IT Transition metal compounds
(aluminophosphates; hydrotreating and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Silicates, uses
(chromo-; hydrotreating and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Aluminophosphate zeolites
(cobalt; hydrotreating and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Silicates, uses
(ferrosilicates; hydrotreating and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Petroleum refining catalysts
(hydrogenation; hydrotreating and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Petroleum hydrotreating catalysts
Solid solutions
(hydrotreating and/or hydroconversion catalyst comprising active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Hydrodesulfurization catalysts
Molecular sieves
(hydrotreating and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT **Aluminates**
Aluminophosphates
Beta zeolites
Borosilicates
Clays, uses
Faujasite-type zeolites
Group VIII elements
L zeolites
Mordenite-type zeolites
Phyllosilicate minerals
Rare earth Y zeolites
Silicalites (zeolites)
Silicoaluminophosphate zeolites
Titanates
X zeolites
Y zeolites
Zeolite ZSM-22

- Zeolite ZSM-5
 Zeolite omega
 (hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Paraffin oils
 (hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Aluminosilicates, uses
 (phosphoaluminosilicates; hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Silicates, uses
 (phyllo-; hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Aluminophosphates
 (silicoaluminophosphates; hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT Aluminophosphate zeolites
 (transition metal; hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT 108-88-3, Toluene, uses 119-64-2, Tetralin
 (hydrogenation of; hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)
- IT 1303-86-2, Boron oxide, uses **1309-48-4**, Magnesia, uses **1312-81-8**, Lanthanum oxide **1314-23-4**, Zirconium oxide, uses 1318-00-9, Vermiculite 1318-74-7, Kaolinite, uses 1318-93-0, Montmorillonite, uses 1319-41-1, Saponite **1344-28-1**, Alumina, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7631-86-9, Silica, uses 7784-30-7, Aluminum phosphate **11104-48-6**, Calcium **aluminate** 11129-08-1, Barium **aluminate** 11129-18-3, Cerium oxide **11137-98-7**, Magnesium **aluminate** 12172-85-9, Beidellite 12173-47-6, Hectorite **12651-25-1**, **Zinc titanate** 12653-76-8, Nickel titanium oxide 12672-27-4, Cobalt **aluminate** 12678-40-9, Aluminum iron oxide 13308-51-5, Boron phosphate **13463-67-7**, Titanium oxide, uses 14807-96-6, Talc, uses 25666-97-1, Chrysolite 37247-93-1, Cobalt titanate **37275-76-6**, Zinc **aluminate** **39354-08-0**, Nickel **aluminate** 39427-01-5, Copper **aluminate** 50957-60-3, Manganese **aluminate** 52337-10-7, Titanium aluminosilicate 53320-86-8, Laponite 61076-98-0, Antigorite 847665-67-2,

Molybdenum tungsten **sulfide** ((Mo,W)S1.4-2.6)
(hydrorefining and/or hydroconversion catalyst comprising an active phase in form of solid soln. **sulfide** of molybdenum and tungsten)

L21 ANSWER 2 OF 27 HCA COPYRIGHT 2005 ACS on STN

142:56819 Chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes. Bergmeister, Joseph J.; Delzer, Gary A.; Cheung, Tin-Tack P. (Chevron Phillips Chemical Company CPChem, USA). U.S. Pat. Appl. Publ. US 2004260131 A1 20041223, 6 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-600609 20030623.

AB Chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes are described. The catalyst compn. comprises palladium, silver, potassium, and an inorg. support material, where the catalyst compn. contains <0.3% potassium. In the presence of **sulfur**-contg. impurities (e.g., **COS**), these catalysts yield a much smaller increase in T1 (cleanup temp.) and higher ethylene selectivity is achieved (i.e., hydrogenation of acetylene into ethylene).

IT 75-15-0, **Carbon disulfide**, uses

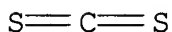
463-58-1, **Carbonyl sulfide**

7783-06-4, **Hydrogen sulfide**, uses

(catalyst component; chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes)

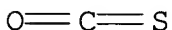
RN 75-15-0 HCA

CN Carbon disulfide (8CI, 9CI) (CA INDEX NAME)



RN 463-58-1 HCA

CN Carbon oxide sulfide (COS) (7CI, 9CI) (CA INDEX NAME)



RN 7783-06-4 HCA

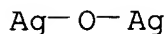
CN Hydrogen sulfide (H2S) (8CI, 9CI) (CA INDEX NAME)



IT 20667-12-3, **Silver oxide**

(in chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes)

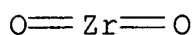
RN 20667-12-3 HCA
 CN Silver oxide (Ag₂O) (8CI, 9CI) (CA INDEX NAME)



IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses
 12651-25-1, Zinc titanate
 13463-67-7, Titania, uses 37275-76-6, Zinc
 aluminate

(support; chemoselective hydrogenation catalysts and their use in
 a process for the removal of alkynes and alkadienes from alkenes)

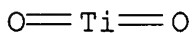
RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM C07C005-03

- INCL 585259000
- CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 48, 67
- IT **Disulfides**
Thioethers
Thiols, uses
(catalyst components; in chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes)
- IT **75-15-0, Carbon disulfide**, uses
463-58-1, Carbonyl sulfide
7783-06-4, Hydrogen sulfide, uses
(catalyst component; chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes)
- IT 7440-05-3, Palladium, uses 7440-09-7, Potassium, uses 7440-22-4, Silver, uses 7789-23-3, Potassium fluoride **20667-12-3**, Silver oxide
(in chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes)
- IT **1314-23-4, Zirconia**, uses **1344-28-1, Alumina**, uses 7631-86-9, Silica, uses **12651-25-1, Zinc titanate 13463-67-7, Titania**, uses **37275-76-6, Zinc aluminate**
(support; chemoselective hydrogenation catalysts and their use in a process for the removal of alkynes and alkadienes from alkenes)
- L21 ANSWER 3 OF 27 HCA COPYRIGHT 2005 ACS on STN
- 141:229675 Attrition resistant, **zinc titanate**
-containing, reduced sorbents and methods of use thereof. *(this case)*
Vierheilig, Albert A.; Gupta, Raghubir P.; Turk, Brian S. (Research Triangel Institute, USA; Intercat, Inc.). U.S. Pat. Appl. Publ. US 2004170549 A1 20040902, 17 pp., Division of U.S. Ser. No. 541,204. (English). CODEN: USXXCO. APPLICATION: US 2004-790920 20040302. PRIORITY: US 2000-541204 20000403.
- AB Reduced **sulfur** gas species (e.g., **H₂S**, **COS** and **CS₂**) are removed from a gas stream by compns. wherein a **zinc titanate** ingredient is assocd. with a **metal oxide-aluminate** phase material in the same particle species. Non-limiting examples of **metal oxides** comprising the compns. include magnesium oxide, zinc oxide, calcium oxide, nickel oxide. These compns., aside from their chem. reactivity toward reduced **sulfur** gases, also have the phys. attributes of toughness and attrition resistance.
- IT **12651-25-1, Zinc titanate**
(attrition resistant, **zinc titanate**-contg., reduced sorbents and methods of use thereof)

RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

IT **1305-78-8, Calcium oxide, reactions 1313-99-1, Nickel oxide, reactions 1314-13-2, Zinc oxide, reactions 1344-28-1, Alumina, reactions 13463-67-7, Titanium oxide, reactions**
 (attrition resistant, **zinc titanate**-contg.,
 reduced sorbents and methods of use thereof)

RN 1305-78-8 HCA
 CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

RN 1313-99-1 HCA
 CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)

Ni=O

RN 1314-13-2 HCA
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O=Zn

RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

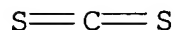
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)

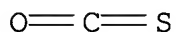
O=Ti=O

IT **75-15-0, Carbon disulfide, processes 463-58-1, Carbonyl sulfide 7783-06-4, Hydrogen sulfide, processes**
 (attrition resistant, **zinc titanate**-contg.,
 reduced sorbents and methods of use thereof)

RN 75-15-0 HCA
 CN Carbon disulfide (8CI, 9CI) (CA INDEX NAME)



RN 463-58-1 HCA
 CN Carbon oxide sulfide (COS) (7CI, 9CI) (CA INDEX NAME)

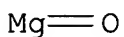


RN 7783-06-4 HCA
 CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)



IT **1309-48-4**, Magnesium oxide, uses
 (attrition resistant, **zinc titanate**-contg.,
 reduced sorbents and methods of use thereof)

RN 1309-48-4 HCA
 CN Magnesium oxide (MgO) (9CI) (CA INDEX NAME)



IT **11104-48-6P**, Calcium **aluminate 11137-98-7P**
 , Magnesium **aluminate 37275-76-6P**, Zinc
aluminate 39354-08-0P, Nickel **aluminate**
 (support/binder; attrition resistant, **zinc**
titanate-contg., reduced sorbents and methods of use
 thereof)

RN 11104-48-6 HCA
 CN Aluminum calcium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Ca	x	7440-70-2
Al	x	7429-90-5

RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 37275-76-6 HCA

CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

RN 39354-08-0 HCA

CN Aluminum nickel oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Al	x	7429-90-5

IC ICM B01D053-50

INCL 423244060

CC 59-4 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 51

ST sorbent reduced **sulfur** compd **flue gas**
treatment; **zinc titanate metal**
oxide aluminate sorbent reduced **sulfur**
gas

IT **Flue gases****Fuel gases**

Sorbents

Waste gases

(attrition resistant, **zinc titanate**-contg.,
reduced sorbents and methods of use thereof)

IT Bentonite, reactions

(attrition resistant, **zinc titanate**-contg.,
reduced sorbents and methods of use thereof)

IT **12651-25-1, Zinc titanate**

(attrition resistant, **zinc titanate**-contg.,
reduced sorbents and methods of use thereof)

IT 142-72-3, Magnesium acetate 471-34-1, Calcium carbonate, reactions
1305-78-8, Calcium oxide, reactions **1313-99-1**,
Nickel oxide, reactions **1314-13-2**, Zinc oxide, reactions

- 1318-23-6, Disperal P3 **1344-28-1**, Alumina, reactions
13463-67-7, Titanium oxide, reactions
(attrition resistant, **zinc titanate**-contg.,
reduced sorbents and methods of use thereof)
- IT **75-15-0**, Carbon disulfide, processes
463-58-1, Carbonyl sulfide
7783-06-4, Hydrogen sulfide, processes
(attrition resistant, **zinc titanate**-contg.,
reduced sorbents and methods of use thereof)
- IT **64-18-6**, Formic acid, reactions
(attrition resistant, **zinc titanate**-contg.,
reduced sorbents and methods of use thereof)
- IT **1309-48-4**, Magnesium oxide, uses
(attrition resistant, **zinc titanate**-contg.,
reduced sorbents and methods of use thereof)
- IT **11104-48-6P**, Calcium aluminate **11137-98-7P**
, Magnesium aluminate **37275-76-6P**, Zinc
aluminate **39354-08-0P**, Nickel aluminate
(support/binder; attrition resistant, **zinc
titanate**-contg., reduced sorbents and methods of use
thereof)
- L21 ANSWER 4 OF 27 HCA COPYRIGHT 2005 ACS on STN
140:168641 **Flue gas** treatments to reduce NO_x and CO
emissions. Vierheilig, Albert A. (Intercat, Inc., USA). PCT Int.
Appl. WO 2004014793 A1 20040219, 17 pp. DESIGNATED STATES: W: AE,
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR,
CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,
ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,
MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO,
RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM,
CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL,
PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO
2003-US25190 20030813. PRIORITY: US 2002-PV402710 20020813.
- AB The invention provides compns. and methods to reduce NO_x emissions
from the **flue gas** of a fluid catalytic cracking
(FCC) unit. The invention also provides methods for reducing CO
emissions from the regenerator and/or the flue of an FCC unit. The
compns. of the invention comprise copper and/or cobalt and a
carrier. The carrier can be, for example, hydrotalcite like
compds., spinels, alumina, **zinc titanate**,
zinc aluminate, **zinc titanate**/
zinc aluminate, and the like.
- IT **1307-96-6**, Cobalt oxide, uses **1309-48-4**, Magnesia,
uses **1317-38-0**, Copper oxide CuO, uses **1344-28-1**
, Alumina, uses **12651-25-1**, Zinc
titanate 37275-76-6, Zinc aluminate

(comps. for removing NOx and CO from **flue gas**
emitted from fluid catalytic cracking app.)

RN 1307-96-6 HCA
CN Cobalt oxide (CoO) (8CI, 9CI) (CA INDEX NAME)

Co=O

RN 1309-48-4 HCA
CN Magnesium oxide (MgO) (9CI) (CA INDEX NAME)

Mg=O

RN 1317-38-0 HCA
CN Copper oxide (CuO) (8CI, 9CI) (CA INDEX NAME)

Cu=O

RN 1344-28-1 HCA
CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12651-25-1 HCA
CN Titanium zinc oxide (9CI) (CA INDEX NAME)

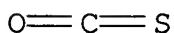
Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 37275-76-6 HCA
CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM C01B021-00
CC 59-4 (Air Pollution and Industrial Hygiene)
ST **flue gas** treatment compn nitrogen oxide carbon
monoxide removal
IT Cracking (reaction)

- (app.; compns. for removing NO_x and CO from **flue gas** emitted from fluid catalytic cracking app.)
- IT **Flue gases**
(compns. for removing NO_x and CO from **flue gas** emitted from fluid catalytic cracking app.)
- IT Air pollution
(control; compns. for removing NO_x and CO from **flue gas** emitted from fluid catalytic cracking app.)
- IT Reactors
(cracking app.; compns. for removing NO_x and CO from **flue gas** emitted from fluid catalytic cracking app.)
- IT 1302-67-6, Spinel **1307-96-6**, Cobalt oxide, uses **1309-48-4**, Magnesia, uses **1317-38-0**, Copper oxide CuO, uses **1344-28-1**, Alumina, uses 12304-65-3, Hydrotalcite **12651-25-1**, **Zinc titanate 37275-76-6**, **Zinc aluminate**
(compns. for removing NO_x and CO from **flue gas** emitted from fluid catalytic cracking app.)
- IT 630-08-0, Carbon monoxide, processes 11104-93-1, NO_x, processes
(compns. for removing NO_x and CO from **flue gas** emitted from fluid catalytic cracking app.)
- L21 ANSWER 5 OF 27 HCA COPYRIGHT 2005 ACS on STN
139:338320 Selective hydrogenation process for the production of ethylene and propylene using a palladium catalyst and a **sulfur**-containing compound. Bergmeister, Joseph J.; Young, David A. (USA). U.S. Pat. Appl. Publ. US 2003204120 A1 20031030, 6 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-133150 20020426.
- AB In a selective hydrogenation process in which highly unsatd. hydrocarbons, such as diolefins and/or alkynes, produced by cracking reactions, are contacted with catalyst compns. contg. palladium, a **sulfur**-contg. compd. (e.g., **carbonyl sulfide**), an inorg. support and, optionally, a component silver or alkali metal fluoride, in the presence of hydrogen to produce less unsatd. hydrocarbons such as monoolefins (e.g., ethylene and propylene).
- IT **463-58-1, Carbonyl sulfide**
(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)
- RN 463-58-1 HCA
CN Carbon oxide sulfide (COS) (7CI, 9CI) (CA INDEX NAME)

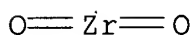


- IT **1314-23-4**, Zirconia, uses **1344-28-1**, Alumina, uses

12651-25-1, Zinc titanate

13463-67-7, Titania, uses 37275-76-6, Zinc
aluminate(support; selective hydrogenation process for the prodn. of
ethylene and propylene using a palladium catalyst and a
sulfur-contg. compd.)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)

RN 1344-28-1 HCA

CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

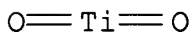
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)

RN 37275-76-6 HCA

CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM C07C007-163

ICS C07C007-167

INCL 585258000; 585259000; 585261000

CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 23, 48, 67

IT Hydrogenation

Hydrogenation catalysts

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)

IT Alkadienes

Alkynes

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)

IT Alkenes, preparation

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)

IT Alkali metal fluorides

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd. and)

IT Organic compounds, uses

(**sulfur**-contg.; selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)

IT **463-58-1, Carbonyl sulfide** 7440-05-3,

Palladium, uses

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)

IT 74-85-1P, Ethylene, preparation 115-07-1P, Propene, preparation

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)

IT 74-86-2, Acetylene, reactions 74-99-7, Propyne 78-79-5, Isoprene, reactions 106-99-0, 1,3-Butadiene, reactions 107-00-6, 1-Butyne 463-49-0, Propadiene 503-17-3, 2-Butyne 504-60-9, 1,3-Pentadiene 513-81-5, 2,3-Dimethyl-1,3-butadiene 590-19-2, 1,2-Butadiene 591-93-5, 1,4-Pentadiene 591-95-7, 1,2-Pentadiene 592-42-7, 1,5-Hexadiene 592-44-9, 1,2-Hexadiene 592-45-0, 1,4-Hexadiene 592-48-3, 1,3-Hexadiene 598-23-2, 3-Methyl-1-butyne 627-19-0, 1-Pentyne 627-21-4, 2-Pentyne 628-71-7, 1-Heptyne 629-05-0, 1-Octyne 693-02-7, 1-Hexyne 764-93-2, 1-Decyne 1118-58-7, 2-Methyl-1,3-pentadiene 1333-74-0, Hydrogen, reactions 3452-09-3, 1-Nonyne 42441-75-8, Heptadiene 63597-41-1, Octadiene 81455-44-9, Methylhexadiene

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)

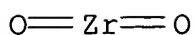
IT 7440-22-4, Silver, uses

(selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd. and)

- IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 12651-25-1, **Zinc titanate 13463-67-7**, Titania, uses 37275-76-6, **Zinc aluminate**
(support; selective hydrogenation process for the prodn. of ethylene and propylene using a palladium catalyst and a **sulfur**-contg. compd.)
- L21 ANSWER 6 OF 27 HCA COPYRIGHT 2005 ACS on STN
- 138:323727 Supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, especially cracked gasoline and diesel fuel. Khare, Gyanesh P. (Conocophillips Co., USA). U.S. Pat. Appl. Publ. US 2003070966 A1 20030417, 9 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-976195 20011012.
- AB A regenerable sorbent for removing **sulfur** compds. from hydrocarbons consists of supported zinc oxide promoted by 0.01-25 wt.% of a reduced-valence (e.g., to zero valence) noble metal. Suitable supports include alumina, silica, silica gel, diatomaceous earth, expanded perlite, kieselguhr, titania, **zinc aluminate**, **zinc titanate**, and synthetic zeolites; suitable noble metal promoters are Pt, Pd, Rh, Ru, Os, and Ir. The sorbent, which is suitable for **desulfurizing** cracked gasoline and diesel fuel, is activated by hydrogen redn. at <1500.degree.F and <1500 psia prior to sorption, and can be regenerated by stripping and air oxidn. at <1500.degree.F and <500 psia. Sorption is carried out at 100-1000.degree.F and 15-1500 psia.
- IT 1314-13-2, Zinc oxide, uses
(sorbent; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- RN 1314-13-2 HCA
- CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O=Zn

- IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 11137-98-7, Magnesium **aluminate 12651-25-1**, **Zinc titanate 13463-67-7**, Titania, uses 37275-76-6, **Zinc aluminate**
(support; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- RN 1314-23-4 HCA
- CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



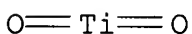
RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM B01J023-60
 ICS C10G045-04
 INCL 208217000; 502329000; 502237000; 502253000
 CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
 ST regeneration **desulfurization** sorbent noble metal zinc

- oxide; cracked gasoline **desulfurization** sorbent; diesel zinc oxide platinum **desulfurization** sorbent
- IT Gasoline
(cracker gasoline, **sulfur** removal from; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT Petroleum refining
(**desulfurization**, sorbents; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT Perlite
(expanded, support; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT Noble metals
(sorbent promoter; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT Diesel fuel
(**sulfur** removal from; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT Diatomite
Silica gel, uses
Zeolite-group minerals
Zeolites (synthetic), uses
(support; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT Sorbents
(supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT 7439-88-5, Iridium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses
(sorbent promoter; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT 1314-13-2, Zinc oxide, uses
(sorbent; supported noble metal-promoted zinc oxide regenerable sorbent for **desulfurization** of hydrocarbon feedstocks, esp. cracked gasoline and diesel fuel)
- IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 11126-29-7, Zinc silicate 11137-98-7, Magnesium **aluminate** 12032-30-3,

Magnesium titanate **12651-25-1**, Zinc
 titanate **13463-67-7**, Titania, uses
37275-76-6, Zinc aluminate

(support; supported noble metal-promoted zinc oxide regenerable
 sorbent for **desulfurization** of hydrocarbon feedstocks,
 esp. cracked gasoline and diesel fuel)

L21 ANSWER 7 OF 27 HCA COPYRIGHT 2005 ACS on STN

138:223979 **Desulfurization** and novel sorbent for same. Khare,
 Gyanesh P. (USA). U.S. Pat. Appl. Publ. US 2003047489 A1 20030313,
 9 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-949336
 20010907.

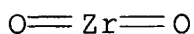
AB A sorbent compn. comprising a support and reduced-valence iron can
 be used to **desulfurize** a hydrocarbon-contg. fluid such as
 cracked-gasoline or diesel fuel.

IT **1314-23-4**, Zirconia, uses **1344-28-1**, Alumina, uses
11137-98-7, Magnesium aluminate **12651-25-1**
 , Zinc titanate **13463-67-7**, Titania,
 uses **37275-76-6**, Zinc aluminate

(sorbent for **desulfurization** of hydrocarbons such as
 gasoline and novel sorbent contg. reduced-valence iron)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA

CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 11137-98-7 HCA

CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6

Ti | x | 7440-32-6

RN 13463-67-7 HCA

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

RN 37275-76-6 HCA

CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IT 1314-13-2, Zinc oxide, uses

(sorber for **desulfurization** of hydrocarbons such as gasoline and novel sorber contg. reduced-valence iron)

RN 1314-13-2 HCA

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O=Zn

IC ICM B01J020-02

ICS C01B007-00; C10G045-04

INCL 208208000R; 502406000; 502405000; 423244100; 208217000

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)

ST gasoline **desulfurization** reduced valence iron sorber

IT Perlite

(expanded; sorber for **desulfurization** of hydrocarbons such as gasoline and novel sorber contg. reduced-valence iron)

IT **Desulfurization**

(sorber for **desulfurization** of hydrocarbons such as gasoline and novel sorber contg. reduced-valence iron)

IT Gasoline

(sorber for **desulfurization** of hydrocarbons such as gasoline and novel sorber contg. reduced-valence iron)

IT Silica gel, uses

Zeolite-group minerals

Zeolites (synthetic), uses

(sorber for **desulfurization** of hydrocarbons such as gasoline and novel sorber contg. reduced-valence iron)

IT Diatomite

(sorber for **desulfurization** of hydrocarbons such as

- gasoline and novel sorbent contg. reduced-valence iron)
- IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 11126-29-7, Zinc silicate 11137-98-7, Magnesium **aluminate** 12032-30-3, Magnesium titanate 12651-25-1, Zinc **titanate** 13463-67-7, Titania, uses 37275-76-6, Zinc **aluminate** 159995-97-8, Aluminum silicon oxide
(sorbent for **desulfurization** of hydrocarbons such as gasoline and novel sorbent contg. reduced-valence iron)
- IT 1314-13-2, Zinc oxide, uses
(sorbent for **desulfurization** of hydrocarbons such as gasoline and novel sorbent contg. reduced-valence iron)
- IT 64-19-7, Acetic acid, reactions 1333-74-0, Hydrogen, reactions 7732-18-5, Water, reactions 7782-61-8 21645-51-2, Aluminum hydroxide, reactions
(sorbent for **desulfurization** of hydrocarbons such as gasoline and novel sorbent contg. reduced-valence iron)
- IT 7704-34-9, **Sulfur**, processes
(sorbent for **desulfurization** of hydrocarbons such as gasoline and novel sorbent contg. reduced-valence iron)
- IT 7439-89-6, Iron, uses
(valence <2; sorbent for **desulfurization** of hydrocarbons such as gasoline and novel sorbent contg. reduced-valence iron)

L21 ANSWER 8 OF 27 HCA COPYRIGHT 2005 ACS on STN

138:14984 Supported **sulfur** compositions and the preparation and use thereof. Cheung, Tin-Tack Peter; Kubicek, Donald H.; Legg, David E. (Phillips Petroleum Company, USA). U.S. US 6491887 B1 20021210, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-593071 20000613.

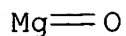
AB A solid combination of elemental **sulfur** and an inorg. support material prep'd. in an inert atm. to provide a compn. for absorbing trialkyl arsines. The compn. prep'd. thereby and the method for absorbing trialkyl arsines using the compn.

IT 1309-48-4, Magnesia, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 1344-28-1D, Alumina, fluorided 12055-23-1, Hafnia 12651-25-1, Zinc **titanate** 13463-67-7, Titania, uses 37275-76-6, Zinc **aluminate**

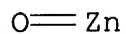
(supported **sulfur** compns. and the prepn. and use thereof for absorption of trialkyl arsines)

RN 1309-48-4 HCA

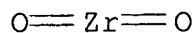
CN Magnesium oxide (MgO) (9CI) (CA INDEX NAME)



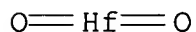
RN 1314-13-2 HCA
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



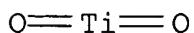
RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12055-23-1 HCA
 CN Hafnium oxide (HfO₂) (8CI, 9CI) (CA INDEX NAME)



RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component
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		Registry Number
=====+=====+=====		
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM B01D053-14
ICS B01D053-72; B01D020-00

INCL 423245100; 502400000; 502407000; 502415000; 502417000; 502423000;
585820000

CC 48-1 (Unit Operations and Processes)

ST supported **sulfur** compn trialkyl arsine absorption

IT Alkaline earth metals
(**aluminates** or titanates; supported **sulfur**
compns. and the prepn. and use thereof for absorption of trialkyl
arsines)

IT Zeolites (synthetic), uses
(supported **sulfur** compns. and the prepn. and use
thereof for absorption of trialkyl arsines)

IT 7440-44-0, Carbon, uses
(activated; supported **sulfur** compns. and the prepn. and
use thereof for absorption of trialkyl arsines)

IT **1309-48-4**, Magnesia, uses **1314-13-2**, Zinc oxide,
uses **1314-23-4**, Zirconia, uses **1344-28-1**,
Alumina, uses **1344-28-1D**, Alumina, fluorided 7631-86-9,
Silica, uses 7784-30-7, Aluminum phosphate **12055-23-1**,
Hafnia **12651-25-1**, Zinc titanate
13463-67-7, Titania, uses **37275-76-6**, Zinc
aluminate
(supported **sulfur** compns. and the prepn. and use
thereof for absorption of trialkyl arsines)

IT 7704-34-9P, **Sulfur**, preparation
(supported **sulfur** compns. and the prepn. and use
thereof for absorption of trialkyl arsines)

IT 593-88-4, Trimethylarsine 7784-42-1D, Arsine, trialkyl derivs
(supported **sulfur** compns. and the prepn. and use
thereof for absorption of trialkyl arsines)

IT 67-64-1, Acetone, reactions 124-38-9, Carbon dioxide, reactions
7727-37-9, Nitrogen, reactions
(supported **sulfur** compns. and the prepn. and use
thereof for absorption of trialkyl arsines)

L21 ANSWER 9 OF 27 HCA COPYRIGHT 2005 ACS on STN

136:250122 Regenerable **metal oxide** and
metal-promoted oxides for removal of organic **sulfur**
compounds in hydrocarbon fuel **desulfurization**. Gupta,
Raghubir P.; Turk, Brian S. (Research Triangle Institute, USA). PCT
Int. Appl. WO 2002022763 A1 20020321, 54 pp. DESIGNATED STATES: W:

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2.
APPLICATION: WO 2001-US26019 20010912. PRIORITY: US 2000-PV232165 20000911.

- AB Hydrocarbon feedstocks for manuf. of fuels and fuel components, esp. gasoline and diesel fuel, are **desulfurized** by passage through a regenerable sorbent that not only can selectively adsorb **sulfur** compds. in the feedstock, over an active **metal oxide sulfur** sorbent, but which also contains a refractory inorg. oxide cracking catalyst support that cracks and decomp. cyclic org. and arom. **sulfur** rings. The spent sorbents can be regenerated under high-temp. oxidizing conditions to convert metal **sulfides** (from adsorption and absorption of **sulfur** compds. on **metal oxides** or metal promoters) back to the **metal oxides** with release of **sulfur** oxides. Suitable **metal oxide** sorbents/cracking catalysts include alumina, ZnO, zinc **aluminate**, **zinc titanate**, **zinc aluminate** titanate, iron **aluminate**, ferric oxide, and copper oxide. The method and sorbents are suitable for removal of org. **sulfur** compds. (e.g., **sulfides**, **disulfides**, and arom. **sulfides**) in **sulfur**-contg. naphtha and middle distillates.
- IT 75-15-0, Carbon disulfide, processes (removal of; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization**)
- RN 75-15-0 HCA
- CN Carbon disulfide (8CI, 9CI) (CA INDEX NAME)

S=C=S

- IT 1309-37-1, Ferric oxide, uses 1314-13-2, Zinc oxide, uses 1317-38-0, Copper oxide (CuO), uses 1344-28-1, Alumina, uses 12651-25-1, Zinc **titanate** 37275-76-6, Zinc **aluminate** (sorbents contg.; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization**)
- RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

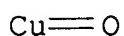
RN 1314-13-2 HCA

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 1317-38-0 HCA

CN Copper oxide (CuO) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA

CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 37275-76-6 HCA

CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM C10G029-16

ICS C10G025-00; C10G025-06; C10G025-12

CC 51-9 (Fossil Fuels, Derivatives, and Related Products)

ST hydrocarbon fuel **desulfurization** org **sulfur**
gasoline diesel; **metal oxide** sorbent cracking
fuel **desulfurization**; regenerable **metal**
oxide sorbent cracking catalyst hydrocarbon
desulfurization

IT Naphtha

(coker, **desulfurization** of; regenerable **metal**
oxide and metal-promoted oxides for removal of org.)

- sulfur** compds. in hydrocarbon fuel
desulfurization)
- IT Naphtha
(cracked, **desulfurization** of; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Petroleum products
(cycle oils; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Thioethers
(cyclic, removal of; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Diesel fuel
(**desulfurization** of components for; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Gasoline
(**desulfurization** of components for; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Naphtha
(**desulfurization** of; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Petroleum refining
(**desulfurization**; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Absorbents
Adsorbents
Sorbents
(**metal oxides**; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Petroleum products
(middle distillates; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization)**
- IT Cracking catalysts
(regenerable **metal oxide** and metal-promoted

oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization**)

IT Thioethers

(removal of; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization**)

IT Aromatic compounds

Aromatic hydrocarbons, processes
(**sulfur**-contg., removal of; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization**)

IT 75-08-1, Ethyl mercaptan **75-15-0, Carbon**

disulfide, processes 95-15-8, Benzothiophene 107-03-9, Propyl mercaptan 109-79-5, Butyl mercaptan 110-02-1, Thiophene 110-81-6, Diethyl **disulfide** 132-65-0, Dibenzothiophene 352-93-2, Diethyl **sulfide** 872-55-9, 2-Ethylthiophene
(removal of; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization**)

IT **1309-37-1**, Ferric oxide, uses **1314-13-2**, Zinc oxide, uses **1317-38-0**, Copper oxide (CuO), uses **1344-28-1**, Alumina, uses **12651-25-1, Zinc titanate** 12678-40-9, Aluminum iron oxide **37275-76-6**, Zinc **aluminate** 146956-70-9, Aluminum titanium zinc oxide

(sorbents contg.; regenerable **metal oxide** and metal-promoted oxides for removal of org. **sulfur** compds. in hydrocarbon fuel **desulfurization**)

L21 ANSWER 10 OF 27 HCA COPYRIGHT 2005 ACS on STN

132:279645 Process and catalysts for the selective hydrogenation of highly unsaturated hydrocarbons into less unsaturated hydrocarbons with reduced oligomer formation and reduced catalyst deactivation. Kimble, James B.; Bergmeister, Joseph J. (Phillips Petroleum Company, USA). PCT Int. Appl. WO 2000023403 A1 20000427, 21 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US20152 19990902. PRIORITY: US 1998-176127 19981021.

AB A supported hydrogenation catalyst compn., comprising palladium, an inorg. support (e.g., alumina), and a selectivity enhancer selected from phosphorus, a phosphorus compd. (e.g., K₂HPO₄), **sulfur**

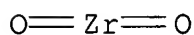
, a **sulfur** compd. (e.g., K₂SO₄), or combinations of .gtoreq.2 such substances, is described as is the selective hydrogenation of highly unsatd. hydrocarbons such as diolefins (e.g., propadiene) and/or alkynes (e.g., acetylene) with hydrogen into less unsatd. hydrocarbons such as monoolefins (e.g., ethylene) with reduced formation of catalyst-deactivating oligomers.

IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 11137-98-7, Magnesium **aluminate** 12651-25-1, **Zinc titanate** 13463-67-7, Titania, uses 37275-76-6, **Zinc aluminate**

(support; process and catalysts for the selective hydrogenation of highly unsatd. hydrocarbons into less unsatd. hydrocarbons with reduced oligomer formation and reduced catalyst deactivation)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA

CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 11137-98-7 HCA

CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====		
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

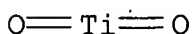
RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====		
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+	=====+	=====+
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM C07C005-03
 ICS C07C005-05; C07C005-02; C10G045-00; B01J023-00; B01J023-44;
 B01J023-60; B01J027-02; B01J027-053; B01J021-08; B01J021-12;
 B01J027-14; B01J027-185; B01J027-182

CC 35-2 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 23, 67

IT 7440-05-3, Palladium, uses 7601-54-9, Sodium phosphate
 7704-34-9, **Sulfur**, uses 7704-34-9D, **Sulfur**,
 compds., uses 7723-14-0, Phosphorus, uses 7723-14-0D,
 Phosphorus, compds., uses 7757-82-6, Sodium sulfate, uses
 7758-11-4, Dipotassium hydrogenphosphate 7778-53-2, Potassium
 phosphate 7778-80-5, Potassium sulfate, uses 7783-20-2, Ammonium
 sulfate, uses 10124-31-9, Ammonium phosphate
 (process and catalysts for the selective hydrogenation of highly
 unsatd. hydrocarbons into less unsatd. hydrocarbons with reduced
 oligomer formation and reduced catalyst deactivation)

IT **1314-23-4**, Zirconia, uses **1344-28-1**, Alumina, uses
 7631-86-9, Silica, uses **11137-98-7**, Magnesium
aluminate 12651-25-1, **Zinc**
titanate 13463-67-7, Titania, uses
37275-76-6, Zinc **aluminate**
 (support; process and catalysts for the selective hydrogenation
 of highly unsatd. hydrocarbons into less unsatd. hydrocarbons
 with reduced oligomer formation and reduced catalyst
 deactivation)

L21 ANSWER 11 OF 27 HCA COPYRIGHT 2005 ACS on STN

131:230266 Process and catalyst for selective hydrogenation of dienes
 and alkynes to olefins. Cheung, Tin-Tack Peter; Johnson, Marvin
 Merrill (Phillips Petroleum Company, USA). PCT Int. Appl. WO
 9946041 A1 19990916, 48 pp. DESIGNATED STATES: W: AL, AM, AT, AU,
 AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB,
 GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
 LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO,
 RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU,
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG,
 CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML,

MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.
APPLICATION: WO 1999-US5043 19990308. PRIORITY: US 1998-39041
19980313.

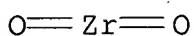
AB A supported hydrogenation catalyst compn. is disclosed which comprises a palladium component, at least one alkali metal iodide (such as potassium iodide), and an inorg. support material (such as alumina). The palladium component is concd. in an area within about 150 .mu.m of the exterior surface of the compn.

IT **1314-23-4**, Zirconia, uses **1344-28-1**, Alumina, uses **12651-25-1, Zinc titanate**
13463-67-7, Titania, uses **37275-76-6**, Zinc
aluminate

(support; supported palladium-alkali iodide catalysts for selective hydrogenation of dienes and alkynes to olefins)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA

CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

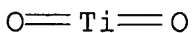
RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA

CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IT **11113-77-2**, Palladium oxide
 (supported palladium-alkali iodide catalysts for selective
 hydrogenation of dienes and alkynes to olefins)
 RN 11113-77-2 HCA
 CN Palladium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Pd	x	7440-05-3

IC ICM B01J027-13
 ICS B01J023-44; C07C005-05; C10G045-50
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
 Section cross-reference(s): 23, 35, 67
 IT **Disulfides**
Sulfides, uses
 Thiols (organic), uses
 (cocatalyst; supported palladium-alkali iodide catalysts for
 selective hydrogenation of dienes and alkynes to olefins)
 IT **1314-23-4**, Zirconia, uses **1344-28-1**, Alumina, uses
 7631-86-9, Silica, uses **12651-25-1**, **Zinc**
titanate 13463-67-7, Titania, uses
37275-76-6, Zinc aluminate
 (support; supported palladium-alkali iodide catalysts for
 selective hydrogenation of dienes and alkynes to olefins)
 IT 7440-05-3, Palladium, uses 7681-11-0, Potassium iodide, uses
11113-77-2, Palladium oxide
 (supported palladium-alkali iodide catalysts for selective
 hydrogenation of dienes and alkynes to olefins)

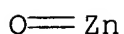
L21 ANSWER 12 OF 27 HCA COPYRIGHT 2005 ACS on STN

131:161003 Attrition resistant, **zinc titanate**
 -containing, reduced **sulfur** sorbents. Vierheilig, Albert
 A. (Bulldog Technologies U.S.A., Inc., USA). PCT Int. Appl. WO
 9942201 A1 19990826, 69 pp. DESIGNATED STATES: W: AL, AM, AT, AU,
 AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB,
 GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
 LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO,
 RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW,
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH,
 CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR,
 NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.
 APPLICATION: WO 1999-US3971 19990224. PRIORITY: US 1998-PV75680
 19980224.

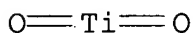
AB Reduced **sulfur** gas species (e.g., **H₂S**,

COS and **CS₂**) are removed from a gas stream by compns. wherein a **zinc titanate** ingredient is assocd. with a **metal oxide-aluminate** phase material in the same particle species.

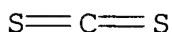
IT **1314-13-2**, Zinc oxide, reactions **1344-28-1**,
Alumina, reactions **13463-67-7**, Titanium oxide, reactions
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)
RN 1314-13-2 HCA
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



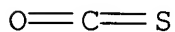
RN 1344-28-1 HCA
CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 13463-67-7 HCA
CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IT **75-15-0**, Carbon disulfide, processes
463-58-1, Carbonyl sulfide
7783-06-4, Hydrogen sulfide (H₂S
) , processes
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)
RN 75-15-0 HCA
CN Carbon disulfide (8CI, 9CI) (CA INDEX NAME)



RN 463-58-1 HCA
CN Carbon oxide sulfide (COS) (7CI, 9CI) (CA INDEX NAME)



RN 7783-06-4 HCA
CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)



IT **11104-48-6**, Aluminum calcium oxide **11137-98-7**,

Aluminum magnesium oxide **12651-25-1, Zinc titanate 37275-76-6**, Aluminum zinc oxide
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)

RN 11104-48-6 HCA

CN Aluminum calcium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ca	x	7440-70-2
Al	x	7429-90-5

RN 11137-98-7 HCA

CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 37275-76-6 HCA

CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM B01D053-48

ICS B01D053-52; B01D053-83; B01D053-96; B01J020-00; B01J020-02;
B01J020-04; B01J020-06; B01J020-30; B01J020-34

CC 59-4 (Air Pollution and Industrial Hygiene)

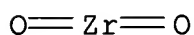
- ST **zinc titanate sulfur** compd sorbent
- IT **Coal gas**
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)
- IT Bentonite, reactions
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)
- IT Hydrocarbons, processes
(gases; attrition resistant, **zinc titanate**
-contg., reduced **sulfur** sorbents for treating gases)
- IT 64-18-6, Formic acid, reactions 142-72-3, Magnesium acetate
471-34-1, Calcium carbonate, reactions **1314-13-2**, Zinc
oxide, reactions **1344-28-1**, Alumina, reactions
13463-67-7, Titanium oxide, reactions
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)
- IT **75-15-0**, Carbon disulfide, processes
463-58-1, Carbonyl sulfide
7783-06-4, Hydrogen sulfide (H₂S
) , processes
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)
- IT **11104-48-6**, Aluminum calcium oxide **11137-98-7**,
Aluminum magnesium oxide **12651-25-1**, **Zinc**
titanate 37275-76-6, Aluminum zinc oxide
(attrition resistant, **zinc titanate**-contg.,
reduced **sulfur** sorbents for treating gases)

L21 ANSWER 13 OF 27 HCA COPYRIGHT 2005 ACS on STN

130:299194 Process for making and use of anionic clay materials.
Vierheilig, Albert A. (Bulldog Technologies U.S.A., Inc., USA). PCT
Int. Appl. WO 9920389 A1 19990429, 81 pp. DESIGNATED STATES: W:
AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK,
EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL,
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN,
YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF,
CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC,
ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.
APPLICATION: WO 1998-US19081 19980915. PRIORITY: US 1997-955017
19971020.

AB Anionic clay compds., such as hydrotalcite-like compds., can be made
by a process wherein a non-hydrotalcite-like compd. (or a
hydrotalcite-like compd.) are heat treated and then hydrated to form
hydrotalcite-like compds. having properties (e.g., increased
hardness and/or d.) that differ from those of hydrotalcite-like
compds. made by prior art methods wherein non-hydrotalcite-like
compds. (or hydrotalcite-like compds.) are not similarly heat

IT treated and hydrated to form such hydrotalcite-like compds.
 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses
 11104-48-6, Calcium **aluminate** 11137-98-7
 , Magnesium **aluminate** 12651-25-1, Zinc
titanate 13463-67-7, Titania, uses
 (binder; in process for making and use of anionic clay materials)
 RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 11104-48-6 HCA
 CN Aluminum calcium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ca	x	7440-70-2
Al	x	7429-90-5

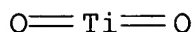
RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IT 1306-38-3, Cerium oxide, uses 1314-62-1, Vanadium
pentoxide, uses
(oxidant; process for making and use of anionic clay materials)
RN 1306-38-3 HCA
CN Cerium oxide (CeO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1314-62-1 HCA
CN Vanadium oxide (V₂O₅) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01J021-16
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 49, 67
ST anionic clay material prepn; **sulfur** oxide sorbent FCC
hydrotalcite compd
IT Petroleum cracking catalysts
(FCC; process for making and use of anionic clay materials for
SO_x sorbent system)
IT Sorbents
(**SO_x**; process for making and use of anionic clay
materials)
IT 1314-23-4, Zirconia, uses 1335-30-4, Aluminum silicate
1344-28-1, Alumina, uses 7631-86-9, Silica, uses
11104-48-6, Calcium **aluminate** 11137-98-7
, Magnesium **aluminate** 12651-25-1, Zinc
titanate 13463-67-7, Titania, uses 21645-51-2,
Aluminum hydroxide, uses 37220-25-0, Aluminum titanate
60800-19-3, Aluminum zirconium oxide
(binder; in process for making and use of anionic clay materials)
IT 7440-45-1D, Cerium, compds., uses 7440-62-2D, Vanadium, compds.,
uses
(in **SO_x** sorbent prepn.; process for making and use of
anionic clay materials)
IT 1306-38-3, Cerium oxide, uses 1314-62-1, Vanadium
pentoxide, uses
(oxidant; process for making and use of anionic clay materials)
IT 7446-11-9, **Sulfur** trioxide, processes
(process for making and use of anionic clay materials)
IT 7446-09-5, **Sulfur** oxide, reactions
(process for making and use of anionic clay materials)

particle species. Demmel, Edward J.; Vierheilig, Albert A.; Lippert, Regis B. (Bulldog Technologies U.S.A., Inc., USA). PCT Int. Appl. WO 9911372 A1 19990311, 73 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1998-US16635 19980811. PRIORITY: US 1997-922710 19970903.

AB The useful life of **SO_x** additives having a **SO₂** .fwdarw.SO₃ oxidn. catalyst component and a SO₃ absorption component can be extended by employing each of these components as sep. and distinct phys. particles, pellets, etc.

IT **1314-62-1**, Vanadia, uses
(**sulfur** oxide additive system for treatment of
flue gases)

RN 1314-62-1 HCA

CN Vanadium oxide (V₂O₅) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **1305-78-8**, Calcium oxide, uses **1306-38-3**, Ceria,
uses **1309-48-4**, Magnesium oxide, uses **1314-23-4**,
Zirconia, uses **1344-28-1**, Condea P-3, uses
11104-48-6, Calcium **aluminate** **11137-98-7**
, Magnesium **aluminate** **12651-25-1**, Titanium zinc
oxide **13463-67-7**, Titania, uses
(**sulfur** oxide additive system for treatment of
flue gases)

RN 1305-78-8 HCA

CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

RN 1306-38-3 HCA

CN Cerium oxide (CeO₂) (8CI, 9CI) (CA INDEX NAME)

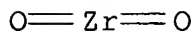
O=Ce=O

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (9CI) (CA INDEX NAME)

Mg=O

RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 11104-48-6 HCA
 CN Aluminum calcium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ca	x	7440-70-2
Al	x	7429-90-5

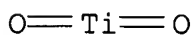
RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01J031-00
 ICS B01J023-00; B01J023-32; B01J023-40; B01J023-58; B01J023-44;
 B01J023-42; B01J023-70; B01J023-02; B01J021-40; B01J020-10;

B01J020-00; B01J008-00

CC 59-4 (Air Pollution and Industrial Hygiene)

ST **flue gas** treatment **sulfur** oxide
removal; oxidn catalyst **sulfur** dioxide removal

IT Kaolin, processes
(RC 32; **sulfur** oxide additive system for treatment of
flue gases)

IT Absorbents
Flue gases
Oxidation catalysts
(**sulfur** oxide additive system for treatment of
flue gases)

IT 220945-44-8, COP 850
(oxidn. catalyst; **sulfur** oxide additive system for
treatment of **flue gases**)

IT **1314-62-1**, Vanadia, uses 7439-88-5, Iridium, uses
7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7439-98-7,
Molybdenum, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium,
uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses
7440-33-7, Tungsten, uses 7440-45-1, Cerium, uses 7440-47-3,
Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses
7440-61-1, Uranium, uses 7440-62-2, Vanadium, uses 7440-64-4,
Ytterbium, uses
(**sulfur** oxide additive system for treatment of
flue gases)

IT 1299-84-9, Bastnaesite **1305-78-8**, Calcium oxide, uses
1306-38-3, Ceria, uses **1309-48-4**, Magnesium oxide,
uses **1314-23-4**, Zirconia, uses 1327-41-9, Aluminum
chlorohydrate 1335-30-4, Aluminum silicate **1344-28-1**,
Condea P-3, uses 7631-86-9, Silica, uses **11104-48-6**,
Calcium **aluminate 11137-98-7**, Magnesium
aluminate 12651-25-1, Titanium zinc oxide
12765-06-9, Calcium magnesium silicate **13463-67-7**,
Titania, uses 13473-90-0, Aluminum nitrate 21645-51-2, Aluminum
hydroxide, uses 37220-25-0, Aluminum titanate 60800-19-3,
Aluminum zirconium oxide 63800-37-3, Sepiolite
(**sulfur** oxide additive system for treatment of
flue gases)

IT 64-18-6, Formic acid, uses 64-19-7, Acetic acid, uses 142-72-3,
Magnesium acetate 471-34-1, Calcium carbonate, uses 546-93-0,
Magnesium carbonate 557-39-1, Magnesium formate 1309-42-8,
Magnesium hydroxide 1343-88-0, Magnesium silicate 7664-38-2,
Phosphoric acid, uses 7786-30-3, Magnesium chloride, uses
10377-60-3, Magnesium nitrate 12304-65-3, Hydrotalcite
17309-53-4, Cerium nitrate 124365-05-5, Condea SB
(**sulfur** oxide additive system for treatment of
flue gases)

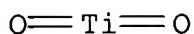
IT 537-01-9, Cerium carbonate 14974-48-2, Vanadium oxalate

- (**sulfur** oxide additive system for treatment of **flue gases**)
- IT 7446-11-9, **Sulfur** trioxide, processes
(**sulfur** oxide additive system for treatment of **flue gases**)
- IT 7446-09-5, **Sulfur** dioxide, processes
(**sulfur** oxide additive system for treatment of **flue gases**)
- L21 ANSWER 15 OF 27 HCA COPYRIGHT 2005 ACS on STN
129:191120 Method for producing elemental **sulfur** from **sulfur**-containing gases. Dorchak, Thomas P.; Gangwal, Santosh K.; Harkins, Scott M. (Research Triangle Institute, USA). U.S. US 5798088 A 19980825, 10 pp., Cont.-in-part of U.S. Ser. No. 298,302, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1995-571118 19951212. PRIORITY: US 1993-40077 19930330; US 1994-298302 19940901.
- AB A method for producing elemental **sulfur** and reduced/oxidized **sulfur** compds. from **sulfur** contg. gases is described. The method comprises mixing a primary gas stream of **sulfur**-contg. gases with a secondary gas stream to produce a combined gas stream having a preselected stoichiometry and contacting the combined gas stream with a catalyst at a pressure of 7 to 100 atm and a temp. of 540.degree. to 700.degree.. The catalyst is selected from the group consisting of silica, titania, alumina, sodium/alumina, **zinc titanate**, alumina or titania promoted with transition metals nickel, cobalt, molybdenum, tungsten, alloys and mixts. thereof and mixt. of such catalysts.
- IT **1344-28-1**, Aluminum oxide (Al₂O₃), uses **12651-25-1**, **Zinc titanate 13463-67-7**, Titanium oxide (TiO₂), uses
(method for producing elemental **sulfur** from **sulfur**-contg. gases)
- RN 1344-28-1 HCA
CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12651-25-1 HCA
CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA

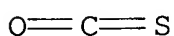
CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IT **463-58-1, Carbonyl sulfide**
7783-06-4, Hydrogen sulfide, processes
(method for producing elemental **sulfur** from
sulfur-contg. gases)

RN 463-58-1 HCA

CN Carbon oxide sulfide (COS) (7CI, 9CI) (CA INDEX NAME)



RN 7783-06-4 HCA

CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-50

ICS C01B017-04

INCL 423567100

CC 49-1 (Industrial Inorganic Chemicals)

Section cross-reference(s): 59

ST **sulfur** manuf **waste gas** treatment

IT **Flue gases**

(industrial **flue gases**; method for producing
elemental **sulfur** from **sulfur**-contg. gases)

IT Catalysts

Waste gases

(method for producing elemental **sulfur** from
sulfur-contg. gases)

IT Transition metals, uses

(method for producing elemental **sulfur** from
sulfur-contg. gases)

IT **1344-28-1, Aluminum oxide (Al₂O₃)**, uses 7439-98-7,
Molybdenum, uses 7440-02-0, Nickel, uses 7440-23-5, Sodium, uses
7440-33-7, Tungsten, uses 7440-48-4, Cobalt, uses 7631-86-9,
Silica, uses 7704-34-9, **Sulfur**, uses 11138-49-1,
Sodium aluminate 12651-25-1, Zinc
titanate 13463-67-7, Titanium oxide (TiO₂), uses
(method for producing elemental **sulfur** from
sulfur-contg. gases)

IT **463-58-1, Carbonyl sulfide** 630-08-0,
Carbon monoxide, processes 1333-74-0, Hydrogen, processes
7446-09-5, **Sulfur** dioxide, processes **7783-06-4**,

Hydrogen sulfide, processes
 (method for producing elemental **sulfur** from
sulfur-contg. gases)

L21 ANSWER 16 OF 27 HCA COPYRIGHT 2005 ACS on STN

129:162763 Manufacture of polyester fiber structures containing two kinds of basic composite oxides as deodorants. Yamamoto, Yoshie; Suzuki, Haruyoshi (Teijin Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10219563 A2 19980818 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-20400 19970203.

AB Title structures, e.g., filaments, ropes, nets, fabrics, etc., contg. 2 kinds of basic composite oxides having different basicity, are manufd. by sep. addn. of the deodorants, i.e., fixing 1 of the oxides on the structures then fixing of the other oxides. Thus, a polyester fabric was impregnated with an aq. dispersion contg. 1.0% polyurethane (I; Elastron MF 25) and 2.0% Ti Zn oxide (Ti:Zn = 1:1; TZ 100, pH 8.5) to 100% resin pick-up, dried at 130.degree. for 3 min, impregnated with another aq. dispersion contg. 1.0% I and 2.0% Mg Al oxide (Mg:Al = 1:1, pH 11.0) to 100% resin pick-up, dried at 130.degree. for 3 min, and heated at 180.degree. for 1 min to give a test piece showing good deodorant effect to NH₃, **H₂S**, and MeCHO.

IT **11137-98-7**, Aluminum magnesium oxide **12651-25-1**,
 TZ 100
 (deodorants; sep. fixing of composite **metal**
oxides as deodorants having different basicity on
 polyester fiber structures)

RN 11137-98-7 HCA

CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

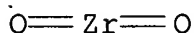
Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

IC ICM D06M011-45

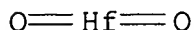
- ICS D06M013-10; D06M015-564
CC 40-9 (Textiles and Fibers)
IT Deodorants
(sep. fixing of composite **metal oxides** as
deodorants having different basicity on polyester fiber
structures)
IT Polyester fibers, properties
(sep. fixing of composite **metal oxides** as
deodorants having different basicity on polyester fiber
structures)
IT 152986-99-7, Elastron MF 25
(binders; sep. fixing of composite **metal oxides**
as deodorants having different basicity on polyester fiber
structures)
IT **11137-98-7**, Aluminum magnesium oxide **12651-25-1**,
TZ 100
(deodorants; sep. fixing of composite **metal**
oxides as deodorants having different basicity on
polyester fiber structures)
- L21 ANSWER 17 OF 27 HCA COPYRIGHT 2005 ACS on STN
128:50588 Reduction of spalling in mixed **metal oxide**
desulfurization sorbents by addition of a large promoter
metal oxide. Poston, James A. (United States
Dept. of Energy, USA). U.S. US 5693588 A 19971202, 4 pp.
(English). CODEN: USXXAM. APPLICATION: US 1996-689634 19960816.
- AB Mixed **metal oxide** pellets for removing
hydrogen sulfide from **fuel gas**
mixts. derived from coal are stabilized for operation over repeated
cycles of **desulfurization** and regeneration reactions by
addn. of a large promoter **metal oxide**, such as
lanthanum trioxide. The pellets, which may be principally made up
of a mixed **metal oxide** such as **zinc**
titanate, exhibit phys. stability and lack of spalling or
decrepitation over repeated cycles without loss of reactivity. The
lanthanum oxide is mixed with sorbent particles and binder, in an
amt. of 1-10 wt.%.
- IT **1306-38-3**, Cerium oxide, uses **1312-81-8**, Lanthanum
trioxide **1314-23-4**, Zirconium oxide, uses
12055-23-1, Hafnium oxide **12651-25-1**, **Zinc**
titanate
(spalling elimination in **metal oxide**
desulfurization sorbents by addn. of large promoter
metal oxide)
- RN 1306-38-3 HCA
CN Cerium oxide (CeO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1312-81-8 HCA
 CN Lanthanum oxide (La2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 12055-23-1 HCA
 CN Hafnium oxide (HfO2) (8CI, 9CI) (CA INDEX NAME)



RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

IT **7783-06-4, Hydrogen sulfide, processes**
 (spalling elimination in **metal oxide**
desulfurization sorbents by addn. of large promoter
metal oxide)
 RN 7783-06-4 HCA
 CN Hydrogen sulfide (H2S) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01J020-00
 ICS B01J020-02; B01J023-00; B01J020-18
 INCL 502400000
 CC 51-18 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 48
 ST **desulfurization** sorbent spalling **metal**
oxide additive; **coal gas**
desulfurization sorbent **metal oxide**;
 spalling stability **desulfurization** sorbent additive

- IT **Coal gas**
Coal gasification
Desulfurization
Sorbents
Spalling
(spalling elimination in **metal oxide**
desulfurization sorbents by addn. of large promoter
metal oxide)
- IT Ferrites
Oxides (inorganic), uses
(spalling elimination in **metal oxide**
desulfurization sorbents by addn. of large promoter
metal oxide)
- IT **1306-38-3**, Cerium oxide, uses **1312-81-8**, Lanthanum
trioxide **1314-23-4**, Zirconium oxide, uses 12018-79-0,
Copper iron oxide **12055-23-1**, Hafnium oxide 12063-19-3,
Zinc ferrite **12651-25-1**, Zinc titanate
12737-81-4 39427-01-5, Copper **aluminate**
(spalling elimination in **metal oxide**
desulfurization sorbents by addn. of large promoter
metal oxide)
- IT **7783-06-4**, **Hydrogen sulfide**, processes
(spalling elimination in **metal oxide**
desulfurization sorbents by addn. of large promoter
metal oxide)

L21 ANSWER 18 OF 27 HCA COPYRIGHT 2005 ACS on STN

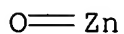
125:176147 Hot gas **desulfurization** by injection of regenerable
sorbents in gasifier-exit ducts. Flytzani-Stephanopoulos, Maria
(Massachusetts Institute of Technology, USA). U.S. US 5538703 A
19960723, 9 pp., Cont. of U.S. Ser. No. 145,440, abandoned.
(English). CODEN: USXXAM. APPLICATION: US 1995-506125 19950724.
PRIORITY: US 1993-145440 19931029.

AB In the method and system for capturing **H2S** from hot gas
streams such as from a coal or other fuel gasifier, zinc or zinc
oxide precursors in gas, liq., or fine powder form are injected into
the hot duct work of coal gasifier exit after fly ash was removed to
react with H2 S gas. In addn. to ZnO **sulfidation**, a
portion of the Zn-based reagents converted to the vapor state in the
reducing **fuel gas** environment, reacts with
H2S and forms fine ZnS particles that are then collected on
a high efficiency, high temp. filter. Periodically, the filter is
backflushed, and spent sorbent is collected in a hopper, removed for
regeneration, and returned to the injection system.

IT **1314-13-2**, Zinc oxide, uses
(hot gas **desulfurization** by injection of regenerable
sorbents in gasifier-exit ducts)

RN 1314-13-2 HCA

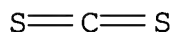
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



IT 75-15-0, Carbon disulfide, processes
463-58-1, Carbonyl sulfide
7783-06-4, Hydrogen sulfide (H₂S
) , processes
(hot gas **desulfurization** by injection of regenerable
sorbents in gasifier-exit ducts)

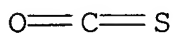
RN 75-15-0 HCA

CN Carbon disulfide (8CI, 9CI) (CA INDEX NAME)



RN 463-58-1 HCA

CN Carbon oxide sulfide (COS) (7CI, 9CI) (CA INDEX NAME)



RN 7783-06-4 HCA

CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)



IT 1306-38-3, Ceria, processes 1308-38-9, Chromia,
processes 1309-48-4, Magnesia, processes 1344-28-1
, Alumina, processes 13463-67-7, Titania, processes
(zinc vapor precursor support; hot gas **desulfurization**
by injection of regenerable sorbents in gasifier-exit ducts)

RN 1306-38-3 HCA

CN Cerium oxide (CeO₂) (8CI, 9CI) (CA INDEX NAME)



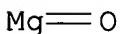
RN 1308-38-9 HCA

CN Chromium oxide (Cr₂O₃) (8CI, 9CI) (CA INDEX NAME)

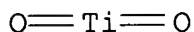
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (9CI) (CA INDEX NAME)



RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IT **12651-25-1, Zinc titanate**
37275-76-6, Zinc aluminate
 (zinc vapor precursor; hot gas **desulfurization**
 by injection of regenerable sorbents in gasifier-exit ducts)
 RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IC ICM B01D053-52
 ICS B01D053-48
 INCL 423230000
 CC 59-4 (Air Pollution and Industrial Hygiene)
 Section cross-reference(s): 51
 ST zinc vapor **sulfur** compd removal gasifier
 IT **Coal** gasification
Fuel gas manufacturing
 (hot **gas desulfurization** by injection of
 regenerable sorbents in gasifier-exit ducts)
 IT Zeolites, processes
 (zinc vapor precursor support; hot **gas desulfurization**
 by injection of regenerable sorbents in gasifier-exit ducts)
 IT 1314-98-3, Zinc **sulfide** (ZnS), processes

- (hot gas **desulfurization** by injection of regenerable sorbents in gasifier-exit ducts)
- IT 1314-13-2, Zinc oxide, uses 7440-66-6, Zinc, uses (hot gas **desulfurization** by injection of regenerable sorbents in gasifier-exit ducts)
- IT 74-93-1, Methyl mercaptan, processes 75-15-0, **Carbon disulfide**, processes 463-58-1, **Carbonyl sulfide** 7704-34-9, **Sulfur**, processes 7783-06-4, **Hydrogen sulfide** (**H₂S**), processes (hot gas **desulfurization** by injection of regenerable sorbents in gasifier-exit ducts)
- IT 1306-38-3, Ceria, processes 1308-38-9, Chromia, processes 1309-48-4, Magnesia, processes 1344-28-1, Alumina, processes 7631-86-9, Silica, processes 13463-67-7, Titania, processes (zinc vapor precursor support; hot gas **desulfurization** by injection of regenerable sorbents in gasifier-exit ducts)
- IT 544-97-8, Dimethyl zinc 557-20-0, Diethyl zinc 557-34-6, Zinc acetate 557-41-5, Zinc formate 3486-35-9, Zinc carbonate 11126-29-7, Zinc silicate 12063-19-3, Zinc ferrite 12651-25-1, **Zinc titanate** 20427-58-1, Zinc hydroxide 37275-76-6, **Zinc aluminate** 106218-90-0, Manganese zinc ferrite 131064-29-4, Copper zinc oxide (zinc vapor precursor; hot gas **desulfurization** by injection of regenerable sorbents in gasifier-exit ducts)
- L21 ANSWER 19 OF 27 HCA COPYRIGHT 2005 ACS on STN
- 125:129986 Zinc oxide-based varistor having zinc **metal oxide** highly electrically resistive layer. Matsuyama, Yoshiho; Wakahata, Yasuo; Tokunaga, Hideaki (Matsushita Electric Ind Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08124720 A2 19960517 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-265237 19941028.
- AB The varistor comprises a ZnO-based varistor having (A) an electrode on its surface and (B) a highly elec. resistive ZnXO-based layer optionally coated with another elec. resistive BiXO- and/or BXO-based layer (X = Fe, Sb, Ti, and/or Al) on the other surface than the electrode. In the varistor comprising a varistor device, an inner electrode formed inside the device, and an outer electrode elec. connected with the both edges of the inner electrode and facing to a free edge of the inner electrode, the highly elec. resistive layer is formed on the device except on the electrode and also on the outer electrode at the side facing to the varistor device. The manuf. of the varistor involving formation of the highly elec. resistive layer by firing of X oxide(s) or a soln. of X-**contg.** metalorg. compd(s) is also claimed. The highly elec. resistive layer shows good chem. and moisture

resistance.

IT **12651-25-1**, Titanium zinc oxide **37275-76-6**,
 Aluminum zinc oxide
 (highly elec. resistive layer; zinc oxide-based varistor having
 zinc **metal oxide** highly elec. resistive
 layer)
 RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IT **1309-37-1**, Iron oxide (Fe₂O₃), uses **1314-13-2**,
 Zinc oxide, uses **1344-28-1**, Alumina, uses
13463-67-7, Titanium oxide, uses
 (zinc oxide-based varistor having zinc **metal**
oxide highly elec. resistive layer)

RN 1309-37-1 HCA
 CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1314-13-2 HCA
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

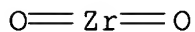
O=Zn

RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

- IC ICM H01C007-12
 CC 76-2 (Electric Phenomena)
 ST varistor high elec resistive layer; bismuth **metal oxide** resistive layer varistor; boron **metal oxide** resistive layer varistor; zinc oxide varistor coating elec resistor
- IT Electric resistors
 (varistors, zinc oxide-based varistor having zinc **metal oxide** highly elec. resistive layer)
- IT 7440-22-4, Silver, uses
 (electrode; zinc oxide-based varistor having zinc **metal oxide** highly elec. resistive layer)
- IT 1344-85-0, Aluminum bismuth oxide 11115-71-2, Bismuth titanium oxide 11129-48-9, Iron zinc oxide **12651-25-1**, Titanium zinc oxide **37275-76-6**, Aluminum zinc oxide 39374-57-7, Bismuth iron oxide 53125-59-0, Antimony zinc oxide 62010-29-1, Antimony bismuth oxide 150261-50-0, Aluminum boron oxide 160501-46-2, Boron titanium oxide 163332-52-3, Boron iron oxide 179730-34-8, Antimony boron oxide
 (highly elec. resistive layer; zinc oxide-based varistor having zinc **metal oxide** highly elec. resistive layer)
- IT **1309-37-1**, Iron oxide (Fe₂O₃), uses **1314-13-2**, Zinc oxide, uses 1327-33-9, Antimony oxide **1344-28-1**, Alumina, uses **13463-67-7**, Titanium oxide, uses
 (zinc oxide-based varistor having zinc **metal oxide** highly elec. resistive layer)
- L21 ANSWER 20 OF 27 HCA COPYRIGHT 2005 ACS on STN
 124:150582 Catalysts for hydrogenation of diolefins such as 1,3-butadiene. Cheung, Tin-tack P.; Johnson, Marvin M. (Phillips Petroleum Co., USA). U.S. US 5475173 A 19951212, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1994-277056 19940719.
- AB A supported catalyst compn., which is effective as a diolefin hydrogenation catalyst, comprises palladium or palladium oxide, silver or silver oxide, and an alkali metal fluoride, e.g., potassium fluoride, on a support of alumina, silica, titania, zirconia, aluminosilicates, zinc **aluminate**, and/or **zinc titanate**. This catalyst compn. is employed in the selective hydrogenation of C₄-C₁₀ diolefins (preferably 1,3-butadiene) with hydrogen gas to the corresponding monoolefins.
- IT **1314-23-4**, Zirconia, uses **1344-28-1**, Alumina, uses **12651-25-1**, Zinc **titanate** **13463-67-7**, Titania, uses **37275-76-6**, Zinc **aluminate**
 (catalyst support; catalysts for hydrogenation of diolefins such as 1,3-butadiene)

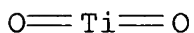
RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

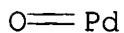
RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IT **1314-08-5**, Palladium oxide **20667-12-3**, Silver
 oxide
 (catalysts for hydrogenation of diolefins such as 1,3-butadiene)
 RN 1314-08-5 HCA
 CN Palladium oxide (PdO) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 20667-12-3 HCA
 CN Silver oxide (Ag₂O) (8CI, 9CI) (CA INDEX NAME)

Ag—O—Ag

IT **7783-06-4, Hydrogen sulfide,**
miscellaneous
(catalysts for hydrogenation of diolefins such as 1,3-butadiene)
RN 7783-06-4 HCA
CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)

H₂S

IC ICM C07C005-05
INCL 585259000
CC 51-4 (Fossil Fuels, Derivatives, and Related Products)
IT **Sulfides**, miscellaneous
Thiols, miscellaneous
(catalysts for hydrogenation of diolefins such as 1,3-butadiene)
IT **1314-23-4**, Zirconia, uses **1344-28-1**, Alumina, uses
7631-86-9, Silica, uses **12651-25-1**, **Zinc**
titanate 13463-67-7, Titania, uses
37275-76-6, Zinc **aluminate**
(catalyst support; catalysts for hydrogenation of diolefins such
as 1,3-butadiene)
IT **1314-08-5**, Palladium oxide 7440-05-3, Palladium, uses
7440-22-4, Silver, uses 7789-23-3, Potassium fluoride
20667-12-3, Silver oxide
(catalysts for hydrogenation of diolefins such as 1,3-butadiene)
IT 630-08-0, Carbon monoxide, miscellaneous **7783-06-4**,
Hydrogen sulfide, miscellaneous
(catalysts for hydrogenation of diolefins such as 1,3-butadiene)

L21 ANSWER 21 OF 27 HCA COPYRIGHT 2005 ACS on STN

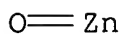
115:117215 Sorption of trialkyl arsines. Tooley, Patricia A.; Cheung,
Tin Tack P.; Cymbaluk, Ted H.; Nowack, Gerhard P.; Johnson, Marvin
M. (Phillips Petroleum Co., USA). U.S. US 5024683 A 19910618, 4
pp. (English). CODEN: USXXAM. APPLICATION: US 1990-537320
19900612.

AB Trialkyl arsines are removed from gases, esp. hydrocarbon gases,
using solid sorbents comprising .gtoreq.1 Cu **sulfide** (esp.
Cu₂S) and an inorg. support (e.g., alumina, ZnO). The alkyl arsines
include Me₃As, Et₃As, Me₂EtAs, and MeEt₂As. The sorbent contains
1-60 wt.% Cu, esp. 5-30%, and can be prepd. by treating a mixt.
contg. CuO and ZnO with gaseous **H₂S** at 20-30.degree..

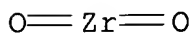
IT **1314-13-2**, Zinc oxide, uses and miscellaneous
1314-23-4, Zirconia, uses and miscellaneous
1344-28-1, Alumina, uses and miscellaneous

12055-23-1, Hafnia 12651-25-1, Zinc
 titanate 13463-67-7, Titania, uses and
 miscellaneous 37275-76-6, Zinc aluminate
 (copper sulfide sorbent contg., for trialkyl arsines)

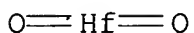
RN 1314-13-2 HCA
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



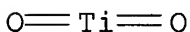
RN 1344-28-1 HCA
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12055-23-1 HCA
 CN Hafnium oxide (HfO₂) (8CI, 9CI) (CA INDEX NAME)



RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 37275-76-6 HCA
 CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2

Zn		x		7440-66-6
Al		x		7429-90-5

IT **7783-06-4, Hydrogen sulfide**, uses and miscellaneous
(in copper **sulfide** sorbent prepn., for trialkyl arsines)

RN 7783-06-4 HCA

CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)

H₂S

IC ICM B01D053-04

INCL 055074000

CC 48-1 (Unit Operations and Processes)

Section cross-reference(s): 51

ST trialkyl arsine removal hydrocarbon gas; copper **sulfide** sorbent arsine removal

IT Alkaline earth compounds
(**aluminates**-titanates, copper **sulfide** sorbent contg., for trialkyl arsines)

IT Aluminosilicates, uses and miscellaneous
(copper **sulfide** sorbent contg., for trialkyl arsines)

IT **Fuel gases**

Natural gas

(trialkyl arsines removal from, solid sorbent for)

IT 7440-44-0, Carbon, uses and miscellaneous
(activated, copper **sulfide** sorbent contg., for trialkyl arsines)

IT 1335-30-4
(aluminosilicates, copper **sulfide** sorbent contg., for trialkyl arsines)

IT **1314-13-2**, Zinc oxide, uses and miscellaneous

1314-23-4, Zirconia, uses and miscellaneous

1344-28-1, Alumina, uses and miscellaneous 7631-86-9,

Silica, uses and miscellaneous 7784-30-7, Aluminum phosphate

12055-23-1, Hafnia **12651-25-1**, Zinc

titanate 13463-67-7, Titania, uses and

miscellaneous **37275-76-6**, Zinc **aluminate**

(copper **sulfide** sorbent contg., for trialkyl arsines)

IT **7783-06-4, Hydrogen sulfide**, uses and miscellaneous

(in copper **sulfide** sorbent prepn., for trialkyl arsines)

IT 593-88-4, Trimethylarsine 617-75-4, Triethylarsine 686-60-2,
Diethylmethyarsine 867-45-8

(removal of, from hydrocarbon gases, copper **sulfide**

sorbent for)

IT 11115-78-9, Copper **sulfide** 22205-45-4, Copper **sulfide** (Cu₂S)
(sorbent, for trialkyl arsines removal, from hydrocarbon gases)

L21 ANSWER 22 OF 27 HCA COPYRIGHT 2005 ACS on STN
114:250168 Manufacture of **sulfur** from **sulfur**
-containing gases. Dorchak, Thomas P.; Gangwal, Santosh K.;
Harkins, Scott M. (Research Triangle Institute, USA). PCT Int.
Appl. WO 9104941 A1 19910418, 27 pp. DESIGNATED STATES: W: CA, JP;
RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE. (English).
CODEN: PIXXD2. APPLICATION: WO 1990-US2765 19900525. PRIORITY: US
1989-415680 19891002.

AB The title process comprises contacting a **S-contg**
. primary gas stream with a catalyst selected from SiO₂, Al₂O₃, Na
aluminate, Zn ferrite, and/or **Zn titanate**
at .gtorsim.300.degree. and .gtorsim.20 atm. Optionally, the
primary gas stream may be mixed with a secondary gas stream prior to
being contacted with the catalyst to obtain a combined gas stream
having a preselected stoichiometry to facilitate conversion of the
gaseous S in the primary gas to elemental S. Primary gas stream
contg. predominantly oxidized **S** gases is mixed
with a reducing secondary gas stream, and vice versa.

IT **1344-28-1**, Alumina, uses and miscellaneous
12651-25-1, Zinc titanate
(catalyst, in solid **sulfur** manuf. from **sulfur**
-contg. gases)

RN 1344-28-1 HCA
CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12651-25-1 HCA
CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

IC ICM C01B017-04
CC 49-1 (Industrial Inorganic Chemicals)
ST **sulfur** manuf combustion gas; silica catalyst
sulfur manuf; alumina catalyst **sulfur** manuf;
sodium **aluminate** catalyst **sulfur** manuf; zinc
ferrite catalyst **sulfur** manuf; **zinc**
titanate catalyst **sulfur** manuf
IT Catalysts and Catalysis

- (Claus-type, in solid **sulfur** manuf. from **sulfur**
-contg. gases)
- IT 1344-28-1, Alumina, uses and miscellaneous 7631-86-9,
Silica, uses and miscellaneous 11129-48-9, Iron zinc oxide
11138-49-1, Sodium **aluminate** 12651-25-1,
Zinc titanate
(catalyst, in solid **sulfur** manuf. from **sulfur**
-contg. gases)
- IT 7704-34-9P, **Sulfur**, preparation
(manuf. of solid, from **sulfur**-contg., gases, catalyst
in)
- L21 ANSWER 23 OF 27 HCA COPYRIGHT 2005 ACS on STN
114:105479 Bench-scale testing of novel high-temperature
desulfurization sorbents: final report. Gangwal, S. K.;
Harkins, S. M.; Stogner, J. M.; Woods, M. C.; Rogers, T. N. (Res.
Triangle Inst., Research Triangle Park, NC, USA). Report,
DOE/MC/23126-2662; Order No. DE89000935, 203 pp. Avail. NTIS From:
Energy Res. Abstr. 1989, 14(14), Abstr. No. 27830 (English) 1988.
- AB Extrudates of regenerable mixed-metal **oxide**
sorbents including Zn ferrite, Cu-modified Zn ferrite, **Zn**
titanate, Cu **aluminate**, CuFe **aluminate**,
and Cu manganate were prepd. and tested for their potential to
remove **H2S** from **coal** gasifier **gas** in a
high-temp. high-pressure fixed-bed reactor. The Zn contg. sorbents
were more promising than those contg. combinations of Cu, Al, Fe,
and Mg. Redns. in **H2S** concn. were achieved depending on
sorbent, reactor temp., and steam concn. The Cu-modified Zn ferrite
sorbent reduced the **H2S** concn. to <1 ppmv at
.ltoreq.1100.degree.F with 20 vol.% steam in the gas. The Zn
ferrite sorbent showed no apparent loss in capacity over 15
sulfidation-regeneration cycles but underwent significant
strength redn. in a **coal**-derived **gas** with 15% or
less steam due to soot formation. **Zn titanate**
exhibited excellent strength and capacity retention at steam levels
as low as 5% and .ltoreq.1350.degree.F.
- IT 7783-06-4, **Hydrogen sulfide**, uses and
miscellaneous
(removal of, high-temp., from **coal gas**, mixed
metal oxide sorbents for)
- RN 7783-06-4 HCA
CN Hydrogen sulfide (H2S) (8CI, 9CI) (CA INDEX NAME)
- H2S
- IT 12651-25-1, **Zinc titanate**
(sorbents, for high-temp. **hydrogen sulfide**

removal, from **coal gas**)

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

CC 51-20 (Fossil Fuels, Derivatives, and Related Products)

ST **coal fuel gas desulfurization**sorbent; **metal oxide** mixed sorbent

IT Coal gasification

(desulfurization in, high-temp., mixed **metal oxide** sorbents for)

IT Sorbents

(metal oxides, mixed, for high-temp.
hydrogen sulfide removal, from **coal gas**)IT **Fuel gases**(coal gas, **hydrogen sulfide**
removal from, mixed **metal oxide** sorbents for)IT **7783-06-4, Hydrogen sulfide**, uses and
miscellaneous(removal of, high-temp., from **coal gas**, mixed
metal oxide sorbents for)

IT 11129-48-9, Iron zinc oxide 11129-48-9D, Iron zinc oxide, copper
modified **12651-25-1, Zinc titanate**
39374-66-8, Copper manganese oxide 39427-01-5, Copper
aluminate 132359-33-2, Aluminum copper iron oxide
(sorbents, for high-temp. **hydrogen sulfide**
removal, from **coal gas**)

L21 ANSWER 24 OF 27 HCA COPYRIGHT 2005 ACS on STN

114:46336 Sorption and detection of trialkyl arsines. Tooley, Patricia
A.; Nowack, Gerhard P. (Phillips Petroleum Co., USA). U.S. US
4971608 A 19901120, 4 pp. (English). CODEN: USXXAM. APPLICATION:
US 1989-446238 19891205.

AB Trialkyl arsines are removed from fluids, esp. gases (e.g., natural
gas) , by contacting with a solid sorbent material contg. >1 Au
component (preferably AuCl and/or AuCl₃ and/or NH₄AuCl₄) and a
support material (preferably Al₂O₃ and/or SiO₂). This process can
be used for colorimetrically detecting the presence of arsines in
gases.

IT **12651-25-1, Zinc titanate**
37275-76-6, Zinc aluminate

(activated, support, gold-promoted sorbents contg., for removal of trialkyl arsines, from hydrocarbon-contg. fluids)

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 37275-76-6 HCA

CN Aluminum zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Al	x	7429-90-5

IT **7783-06-4P, Hydrogen sulfide,**
preparation

(gases contg., trialkyl arsine removal in, by gold-promoted sorbents)

RN 7783-06-4 HCA

CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)

H₂S

IT **1314-13-2, Zinc oxide (ZnO),** uses and miscellaneous

1317-36-8, Lead oxide (PbO), uses and miscellaneous

1317-38-0, Copper oxide (CuO), uses and miscellaneous

(guard bed sorbents contg., in removal of trialkyl arsines from natural gas).

RN 1314-13-2 HCA

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

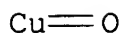
O=Zn

RN 1317-36-8 HCA

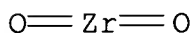
CN Lead oxide (PbO) (8CI, 9CI) (CA INDEX NAME)

O=Pb

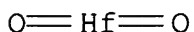
RN 1317-38-0 HCA
CN Copper oxide (CuO) (8CI, 9CI) (CA INDEX NAME)



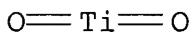
IT **1314-23-4**, Zirconia, uses and miscellaneous
1344-28-1D, Alumina, fluorided **12055-23-1**, Hafnia
13463-67-7, Titanium oxide (TiO₂), uses and miscellaneous
(support, gold-promoted sorbents contg., for removal of trialkyl
arsines, from hydrocarbon-contg. fluids)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCA
CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12055-23-1 HCA
CN Hafnium oxide (HfO₂) (8CI, 9CI) (CA INDEX NAME)



RN 13463-67-7 HCA
CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-04
INCL 055072000
CC 51-5 (Fossil Fuels, Derivatives, and Related Products)
IT 7440-44-0, Carbon, uses and miscellaneous **12651-25-1**,
Zinc titanate 37275-76-6, Zinc
aluminate
(activated, support, gold-promoted sorbents contg., for removal
of trialkyl arsines, from hydrocarbon-contg. fluids)
IT **7783-06-4P**, **Hydrogen sulfide**,
preparation
(gases contg., trialkyl arsine removal in, by gold-promoted
sorbents)
IT **1314-13-2**, Zinc oxide (ZnO), uses and miscellaneous
1317-36-8, Lead oxide (PbO), uses and miscellaneous
1317-38-0, Copper oxide (CuO), uses and miscellaneous

(guard bed sorbents contg., in removal of trialkyl arsines from natural gas)

IT **1314-23-4**, Zirconia, uses and miscellaneous
1344-28-1D, Alumina, fluorided 7631-86-9, Silica, uses and miscellaneous 7631-86-9D, Silica, fluorided 7784-30-7, Aluminum phosphate **12055-23-1**, Hafnia **13463-67-7**, Titanium oxide (TiO₂), uses and miscellaneous (support, gold-promoted sorbents contg., for removal of trialkyl arsines, from hydrocarbon-contg. fluids)

L21 ANSWER 25 OF 27 HCA COPYRIGHT 2005 ACS on STN

111:10031 Testing of novel sorbents for **hydrogen sulfide** removal from **coal gas**. Gangwal, S. K.; Stogner, J. M.; Harkins, S. M.; Bossart, S. J. (Research Triangle Inst., Research Triangle Park, NC, 27709, USA). Environmental Progress, 8(1), 26-34 (English) 1989. CODEN: ENVPDI. ISSN: 0278-4491.

AB Application of zinc ferrite, a regenerable mixed **metal oxide**, for the removal of **H₂S** from hot **coal-derived gas** streams is limited to <677.degree. and to **H₂S** concn. .gtoreq.5 ppm in the cleaned gas. Four novel sorbents that showed potential for overcoming the limitations of zinc ferrite were selected for development and bench-scale testing. Several variations of these mixed **metal oxides** were prepd. with different amts. of binders. They were tested in the presence of simulated **coal gas** in a thermogravimetric reactor for selection of prepn. possessing an adequate combination of reactivity, regeneration, capacity, and strength. Limited bench-scale tests were conducted in the presence of simulated fluidized-bed **coal** gasifier product **gases** at 1-2 MPa, 525-625.degree., and space velocities 1000-3000 m³/m³-h.

IT **12036-43-0**, Titanium zinc oxide (TiZnO₃) (absorbents, for **hydrogen sulfide** removal, from hot **coal gases**, evaluation of)

RN 12036-43-0 HCA

CN Titanium zinc oxide (TiZnO₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	3	17778-80-2
Zn	1	7440-66-6
Ti	1	7440-32-6

IT **7783-06-4**, **Hydrogen sulfide**, uses and miscellaneous (removal of, from hot **coal gases**, absorbents)

- for, evaluation of)
- RN 7783-06-4 HCA
- CN Hydrogen sulfide (H₂S) (8CI, 9CI) (CA INDEX NAME)
- H₂S
- CC 51-20 (Fossil Fuels, Derivatives, and Related Products)
- ST **coal gas hydrogen disulfide**
sorbent; copper iron zinc oxide adsorbent
- IT Absorbents
(for **hydrogen sulfide**, from hot **coal gases**, evaluation of)
- IT **Fuel gases**
(**coal gas**, **hydrogen sulfide**
removal from, absorbents for, evaluation of)
- IT **12036-43-0**, Titanium zinc oxide (TiZnO₃) 12042-92-1,
Copper **aluminate** (CuAl₂O₄) 120897-59-8, Copper iron zinc
oxide (CuFe₂ZnO₅) 121111-38-4, Aluminum copper iron oxide
(Al₂CuFe₂O₇)
(absorbents, for **hydrogen sulfide** removal,
from hot **coal gases**, evaluation of)
- IT **7783-06-4, Hydrogen sulfide**, uses and
miscellaneous
(removal of, from hot **coal gases**, absorbents
for, evaluation of)
- L21 ANSWER 26 OF 27 HCA COPYRIGHT 2005 ACS on STN
- 110:64679 Method of computation of enthalpy increment of crystalline
inorganic compounds at 298.15 K. Bagdavadze, D. I.; Tsagareishvili,
D. Sh.; Tskhadaya, R. A.; Gvelesiani, G. G. (Inst. Metall., Tbilisi,
USSR). Izvestiya Akademii Nauk Gruzinskoi SSR, Seriya
Khimicheskaya, 14(3), 199-206 (Russian) 1988. CODEN: IGSKDH. ISSN:
0132-6074.
- AB A method was developed for the calcn. of the enthalpy increments of
inorg. compds. at 0-298.15 K. From enthalpy data, entropy values
are calcd. A table of calcd. and exptl. values (from literature)
for the enthalpies and entropies of over 200 compds. is presented.
- IT **1304-28-5**, Barium oxide, properties **1304-56-9**,
Beryllium oxide **1305-78-8**, Calcium oxide, properties
1306-38-3, Cerium dioxide, properties **1308-06-1**,
Cobalt oxide (Co₃O₄) **1308-38-9**, Chromia, properties
1309-37-1, Ferric oxide, properties **1309-48-4**,
Magnesium oxide, properties **1310-53-8**, Germanium dioxide,
properties **1312-81-8**, Lanthanum oxide (La₂O₃)
1313-13-9, Manganese dioxide, properties **1313-27-5**
, Molybdenum trioxide, properties **1313-60-6**, Disodium
dioxide **1313-96-8**, Diniobium pentoxide **1313-99-1**

, Nickel oxide, properties **1314-11-0**, Strontium oxide, properties **1314-13-2**, Zinc oxide, properties **1314-34-7**, Divanadium trioxide **1314-35-8**, Tungsten trioxide, properties **1314-61-0**, Ditantalum pentoxide **1317-34-6**, Manganese oxide (Mn2O3) **1317-35-7**, Manganese oxide (Mn3O4) **1317-36-8**, Lead oxide, properties **1317-38-0**, Cupric oxide, properties **1317-39-1**, Cuprous oxide, properties **1317-61-9**, Iron oxide (Fe3O4), properties **1344-28-1**, Alumina, properties **1344-43-0**, Manganese monoxide, properties **1344-54-3**, Dittitanium trioxide **1345-25-1**, Ferrous oxide, properties **12034-59-2**, Niobium dioxide **12035-97-1**, Uranium oxide (UO) **12035-98-2**, Vanadium monoxide **12036-22-5**, Tungsten dioxide **12036-69-0**, Titanium zinc oxide (TiZn2O4) **12036-83-8**, Vanadium oxide (V3O5) **12057-24-8**, Dilithium oxide, properties **12065-65-5**, Titanium oxide (Ti3O5) **12137-20-1**, Titanium monoxide **18868-43-4**, Molybdenum dioxide (enthalpy and entropy of)

RN 1304-28-5 HCA

CN Barium oxide (BaO) (9CI) (CA INDEX NAME)

Ba=O

RN 1304-56-9 HCA

CN Beryllium oxide (BeO) (9CI) (CA INDEX NAME)

Be=O

RN 1305-78-8 HCA

CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

O=Ce=O

RN 1308-06-1 HCA

CN Cobalt oxide (Co3O4) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1308-38-9 HCA

CN Chromium oxide (Cr2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

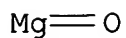
RN 1309-37-1 HCA

CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1309-48-4 HCA

CN Magnesium oxide (MgO) (9CI) (CA INDEX NAME)



RN 1310-53-8 HCA

CN Germanium oxide (GeO2) (8CI, 9CI) (CA INDEX NAME)



RN 1312-81-8 HCA

CN Lanthanum oxide (La2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

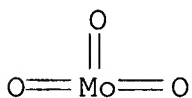
RN 1313-13-9 HCA

CN Manganese oxide (MnO2) (8CI, 9CI) (CA INDEX NAME)



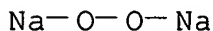
RN 1313-27-5 HCA

CN Molybdenum oxide (MoO3) (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 1313-60-6 HCA

CN Sodium peroxide (Na2(O2)) (8CI, 9CI) (CA INDEX NAME)



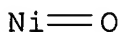
RN 1313-96-8 HCA

CN Niobium oxide (Nb2O5) (8CI, 9CI) (CA INDEX NAME)

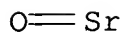
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1313-99-1 HCA

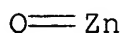
CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)



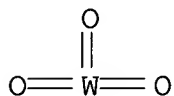
RN 1314-11-0 HCA
CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)



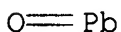
RN 1314-13-2 HCA
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



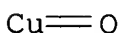
RN 1314-34-7 HCA
CN Vanadium oxide (V2O3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1314-35-8 HCA
CN Tungsten oxide (WO3) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



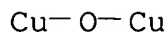
RN 1314-61-0 HCA
CN Tantalum oxide (Ta2O5) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1317-34-6 HCA
CN Manganese oxide (Mn2O3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1317-35-7 HCA
CN Manganese oxide (Mn3O4) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1317-36-8 HCA
CN Lead oxide (PbO) (8CI, 9CI) (CA INDEX NAME)



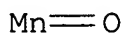
RN 1317-38-0 HCA
CN Copper oxide (CuO) (8CI, 9CI) (CA INDEX NAME)



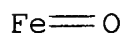
RN 1317-39-1 HCA
CN Copper oxide (Cu2O) (8CI, 9CI) (CA INDEX NAME)



RN 1317-61-9 HCA
CN Iron oxide (Fe_3O_4) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1344-28-1 HCA
CN Aluminum oxide (Al_2O_3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1344-43-0 HCA
CN Manganese oxide (MnO) (8CI, 9CI) (CA INDEX NAME)



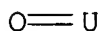
RN 1344-54-3 HCA
CN Titanium oxide (Ti_2O_3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1345-25-1 HCA
CN Iron oxide (FeO) (8CI, 9CI) (CA INDEX NAME)



RN 12034-59-2 HCA
CN Niobium oxide (NbO_2) (7CI, 8CI, 9CI) (CA INDEX NAME)



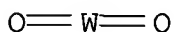
RN 12035-97-1 HCA
CN Uranium oxide (UO) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 12035-98-2 HCA
CN Vanadium oxide (VO) (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 12036-22-5 HCA
CN Tungsten oxide (WO_2) (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 12036-69-0 HCA

CN Titanium zinc oxide (TiZn2O4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Zn	2	7440-66-6
Ti	1	7440-32-6

RN 12036-83-8 HCA

CN Vanadium oxide (V3O5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
V	3	7440-62-2

RN 12057-24-8 HCA

CN Lithium oxide (Li2O) (8CI, 9CI) (CA INDEX NAME)

Li-O-Li

RN 12065-65-5 HCA

CN Titanium oxide (Ti3O5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
Ti	3	7440-32-6

RN 12137-20-1 HCA

CN Titanium oxide (TiO) (8CI, 9CI) (CA INDEX NAME)

O=Ti

RN 18868-43-4 HCA

CN Molybdenum oxide (MoO2) (8CI, 9CI) (CA INDEX NAME)

O=Mo=O

CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)

IT 409-21-2, Silicon carbide, properties 1299-86-1, Aluminum carbide (Al₄C₃) 1302-42-7 1303-11-3, Indium arsenide, properties 1303-86-2, Boron oxide (B₂O₃), properties **1304-28-5**, Barium oxide, properties **1304-56-9**, Beryllium oxide **1305-78-8**, Calcium oxide, properties 1306-23-6, Cadmium **sulfide** (CdS), properties **1306-38-3**, Cerium dioxide, properties **1308-06-1**, Cobalt oxide (Co₃O₄) 1308-31-2, Chromite (Cr₂FeO₄) **1308-38-9**, Chromia, properties **1309-37-1**, Ferric oxide, properties **1309-48-4**, Magnesium oxide, properties 1310-52-7, Magnesium germanide **1310-53-8**, Germanium dioxide, properties 1312-41-0, Indium antimonide, properties **1312-81-8**, Lanthanum oxide (La₂O₃) **1313-13-9**, Manganese dioxide, properties **1313-27-5**, Molybdenum trioxide, properties **1313-60-6**, Disodium dioxide **1313-96-8**, Diniohium pentoxide **1313-99-1**, Nickel oxide, properties **1314-11-0**, Strontium oxide, properties **1314-13-2**, Zinc oxide, properties **1314-34-7**, Divanadium trioxide **1314-35-8**, Tungsten trioxide, properties **1314-61-0**, Ditantalum pentoxide 1314-95-0, Tin **sulfide** (SnS) 1314-98-3, Zinc **sulfide**, properties 1315-11-3, Zinc telluride **1317-34-6**, Manganese oxide (Mn₂O₃) **1317-35-7**, Manganese oxide (Mn₃O₄) **1317-36-8**, Lead oxide, properties **1317-38-0**, Cupric oxide, properties **1317-39-1**, Cuprous oxide, properties **1317-61-9**, Iron oxide (Fe₃O₄), properties **1344-28-1**, Alumina, properties **1344-43-0**, Manganese monoxide, properties **1344-54-3**, Dtitanium trioxide **1345-25-1**, Ferrous oxide, properties 6834-92-0 7446-70-0, Aluminum chloride, properties 7447-40-7, Potassium chloride, properties 7447-41-8, Lithium chloride, properties 7631-86-9, Silica, properties 7647-14-5, Sodium chloride, properties 7647-15-6, Sodium bromide, properties 7647-17-8, Cesium chloride, properties 7681-11-0, Potassium iodide, properties 7681-49-4, Sodium fluoride, properties 7681-82-5, Sodium iodide, properties 7705-08-0, Iron trichloride, properties 7758-02-3, Potassium bromide, properties 7758-94-3, Iron dichloride 7759-00-4, Manganese silicate (MnSiO₃) 7759-01-5, Lead tungsten oxide (PbWO₄) 7773-01-5, Manganese chloride 7775-19-1, Sodium borate (NaBO₂) 7783-40-6, Magnesium fluoride 7784-30-7, Aluminum phosphate (AlPO₄) 7786-30-3, Magnesium chloride, properties 7787-32-8, Barium fluoride 7789-23-3, Potassium fluoride 7789-24-4, Lithium fluoride, properties 7789-82-4 7790-75-2, Calcium tungstate 7790-76-3 10034-77-2, Calcium silicate (Ca₂SiO₄) 10034-94-3, Magnesium silicate (Mg₂SiO₄) 10043-11-5, Boron nitride, properties 10043-52-4, Calcium chloride (CaCl₂), properties 10099-76-0, Lead silicate (PbSiO₃) 10101-52-7, Zirconium silicate 10102-24-6, Lithium

silicate (Li₂SiO₃) 10179-73-4, Iron silicate (Fe₂SiO₄)
 10190-55-3, Lead molybdenum oxide (PbMoO₄) 10361-37-2, Barium
 chloride, properties 11081-91-7 11138-42-4, Mercury selenide
 12002-99-2, Silver telluride (Ag₂Te) 12003-67-7 12004-06-7,
 Beryllium **aluminate** (BeAl₂O₄) 12004-39-6, Aluminum
 titanium oxide (Al₂TiO₅) 12004-88-5 12005-57-1 12007-25-9,
 Magnesium diboride 12007-29-3, Niobium diboride 12008-21-8,
 Lanthanum hexaboride 12009-63-1 12011-67-5, Iron carbide (Fe₃C)
 12011-99-3, Diniohium monocarbide 12012-35-0, Chromium carbide
 (Cr₃C₂) 12013-62-6 12015-73-5, Calcium fluoride phosphate
 (Ca₅F(PO₄)₃) 12017-11-7, Monocobalt monosilicide 12017-12-8,
 Cobalt disilicide 12017-38-8, Cobalt titanium oxide (Co₂TiO₄)
 12018-08-5, Monochromium monosilicide 12018-09-6, Chromium
 silicide (CrSi₂) 12018-17-6 12018-36-9, Trichromium monosilicide
 12018-42-7, Pentachromium trisilicide 12018-75-6, Copper iron
 oxide (CuFeO₂) 12018-79-0, Copper iron oxide (CuFe₂O₄)
 12022-71-8, Iron titanium oxide (FeTiO₃) 12022-94-5, Iron
 diselenide 12022-99-0, Iron silicide (FeSi₂) 12023-03-9, Iron
 ditelluride 12023-27-7, Iron titanium oxide (Fe₂TiO₅)
 12023-54-0, Iron silicide (Fe₃Si) 12023-77-7, Iron silicide
 (Fe₅Si₃) 12026-18-5 12027-83-7 12031-82-2 12032-30-3
 12032-35-8 12032-36-9, Magnesium **sulfide** 12032-52-9
 12032-74-5, Manganese titanium oxide (MnTiO₃) 12032-85-8,
 Manganese silicide (MnSi) 12033-10-2, Pentamanganese trisilicide
 12033-37-3, Trimolybdenum monosilicide 12033-43-1, Niobium nitride
 (Nb₂N) 12034-34-3 **12034-59-2**, Niobium dioxide
 12035-57-3, Nickel silicide 12035-59-5, Nickel telluride (NiTe₂)
12035-97-1, Uranium oxide (UO) **12035-98-2**,
 Vanadium monoxide **12036-22-5**, Tungsten dioxide
12036-69-0, Titanium zinc oxide (TiZn₂O₄) **12036-83-8**
 , Vanadium oxide (V₂O₅) 12039-13-3, Titanium **sulfide**
 12039-52-0, Thallium selenide (TlSe) 12039-76-8, Trivanadium
 monosilicide 12039-87-1, Monovanadium disilicide 12042-68-1
 12042-78-3 12045-63-5, Titanium diboride 12045-64-6, Zirconium
 diboride 12047-27-7, Titanate (TiO₃²⁻) barium (1:1), properties
 12049-50-2 12052-28-7, Cobalt iron oxide (CoFe₂O₄)
12057-24-8, Dilithium oxide, properties 12060-59-2
 12063-19-3, Iron zinc oxide (Fe₂ZnO₄) 12063-27-3, Ferric
sulfide 12063-98-8, Gallium phosphide, properties
12065-65-5, Titanium oxide (Ti₃O₅) 12068-46-1 12068-48-3
 12068-51-8 12068-85-8, Iron **sulfide** (FeS₂) 12068-90-5,
 Mercury telluride 12069-32-8, Tetraboron monocarbide 12069-89-5,
 Dimolybdenum monocarbide 12070-06-3, Tantalum carbide
 12070-07-4, Ditantalum monocarbide 12070-08-5, Titanium carbide
 12070-14-3, Zirconium carbide (ZrC) 12075-40-0, Chromium carbide
 (Cr₇C₃) 12105-81-6, Chromium carbide (Cr₂₃C₆) 12125-23-4,
 Manganese **disulfide** **12137-20-1**, Titanium
 monoxide 12141-46-7, Aluminum silicate (Al₂SiO₅) 12142-65-3,

Lanthanum vanadium oxide (LaVO₃) 12160-20-2, Iron titanium oxide (Fe₂TiO₄) 12163-59-6, Trimanganese monosilicide 12168-54-6, Iron nickel oxide (Fe₂NiO₄) 12168-85-3, Calcium silicate (Ca₃SiO₅) 12187-31-4, Cobalt iron oxide (Co₂FeO₄) 12252-50-5 12253-74-6, Beryllium **aluminate** (BeAl₆O₁₀) 12254-07-8 12254-17-0 13453-69-5, Lithium borate (LiBO₂) 13472-45-2, Sodium tungstate 13477-19-5, Cadmium silicate (CdSiO₃) 13550-26-0, Calcium silicate (Ca₃Si₂O₇) 13566-17-1, Lead silicate (Pb₂SiO₄) 13568-63-3 13573-11-0, Magnesium tungstate 13573-13-2 13573-15-4 13597-16-5 13597-65-4, Zinc silicate (Zn₂SiO₄) 13718-70-2, Iron molybdenum oxide (FeMoO₄) 13721-39-6 13767-03-8 13774-18-0 13776-74-4 13859-99-9, Lanthanum molybdenum oxide (La₂Mo₃O₁₂) 13870-24-1, Iron tungsten oxide (FeWO₄) 15191-85-2, Beryllium silicate (Be₂SiO₄) 18820-29-6, Manganese **monosulfide** **18868-43-4**, Molybdenum dioxide 20548-54-3, Calcium **sulfide** 21109-95-5, Barium **sulfide** 24304-00-5, Aluminum nitride 24621-21-4, Niobium nitride 25583-20-4, Titanium nitride 25658-42-8, Zirconium nitride (ZrN) 37342-39-5 58942-78-2, Aluminum iron oxide (AlFe₂O₄) 112837-53-3, Manganese silicide (MnSi_{1.7}) 118589-37-0
(enthalpy and entropy of)

L21 ANSWER 27 OF 27 HCA COPYRIGHT 2005 ACS on STN

108:84267 The lanthanides' nephelauxetic effect revisited.

Antic-Fidancev, E.; Lemaitre-Blaise, M.; Caro, P. (Lab. Bellevue, CNRS, Meudon-Bellevue, 92195, Fr.). New Journal of Chemistry, 11(6), 467-72 (English) 1987. CODEN: NJCHE5. ISSN: 1144-0546.

AB New exptl. data are given for the small change, called nephelauxetic effect, in the energy levels positions in the solid state for Nd (112 crystallog. sites) and Gd (34 crystallog. sites). The effect depends on structure and chem. nature of the material. It is attributed to change in free atom parameters of the 4fN configuration. From known crystal field parameters, it is shown that there is no correlation with crystal field strength and chem. bonding parameters. Theor. interpretations are reviewed, none is quant. satisfactory. The understanding of the relationship of the nephelauxetic effect with structure remains a theor. challenge.

IT **1312-81-8**, Lanthanum oxide (La₂O₃)
(nephelauxetic effect in gadolinium ion-doped)

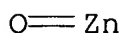
RN 1312-81-8 HCA

CN Lanthanum oxide (La₂O₃) (8CI, 9CI) (CA INDEX NAME)

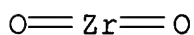
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **1309-64-4**, Antimony oxide (Sb₂O₃), properties
1313-97-9, Neodymium oxide (Nd₂O₃) **1314-13-2**, Zinc oxide, properties **1314-23-4**, properties **1314-36-9**, Yttrium oxide (Y₂O₃), properties **12024-21-4**, Gallium oxide (Ga₂O₃) **12064-62-9**
(nephelauxetic effect in glass contg.)

RN 1309-64-4 HCA
 CN Antimony oxide (Sb2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1313-97-9 HCA
 CN Neodymium oxide (Nd2O3) (7CI, 8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1314-13-2 HCA
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 1314-36-9 HCA
 CN Yttrium oxide (Y2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12024-21-4 HCA
 CN Gallium oxide (Ga2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12064-62-9 HCA
 CN Gadolinium oxide (Gd2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 CC 73-1 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 IT 12024-72-5 12034-54-7, Neodymium niobate (NdNbO4) 12063-81-9, Gadolinium gallate (GdGaO3) 12207-22-6, Neodymium gallate (NdGaO3) 12339-07-0, Gadolinium **oxysulfide** (Gd2O2S) 13477-90-2, Neodymium molybdate (Nd2(MoO4)3) 13721-46-5, Neodymium vanadate (NdVO4) 13759-21-2, Gadolinium oxychloride (GdOCl) 13990-54-0, Yttrium phosphate (YPO4) 54812-70-3, Potassium neodymium phosphate (K3Nd(PO4)2) 59858-92-3, Neodymium gallate (Nd4Ga2O9) 59859-07-3, Neodymium **aluminate** (Nd4Al2O9) 60606-37-3, Neodymium phosphate (Nd3PO7) 71384-19-5, Potassium gadolinium phosphate (K3Gd(PO4)2) 72007-59-1, Sodium neodymium vanadate (Na3Nd(VO4)2) 82658-18-2, Neodymium barium zincate (Nd4Ba2Zn2O10) 112873-26-4, Calcium neodymium **zinc titanate** (CaNd2ZnTi2O9) (nephelauxetic effect in)
 IT **1312-81-8**, Lanthanum oxide (La2O3) (nephelauxetic effect in gadolinium ion-doped)
 IT **1309-64-4**, Antimony oxide (Sb2O3), properties **1313-97-9**, Neodymium oxide (Nd2O3) **1314-13-2**, Zinc oxide, properties **1314-23-4**, properties **1314-36-9**

, Yttrium oxide (Y2O3), properties 7440-00-8, Neodymium, properties 7440-54-2, Gadolinium, properties 7783-64-4 7787-32-8 **12024-21-4**, Gallium oxide (Ga2O3) **12064-62-9** 12183-53-8, Gadolinium germanate (Gd2Ge2O7) 13709-42-7, Neodymium trifluoride 13709-59-6, Thorium tetrafluoride

(nephelauxetic effect in glass contg.)

IT 12003-44-0, Gadolinium **aluminate** (GdAlO3) 12165-42-3, Zirconium scandate (Zr3Sc4O12) 13939-40-7 37233-67-3 55859-86-4, Sodium gadolinium phosphate (Na3Gd(PO4)2) 58572-23-9, Lanthanum phosphate (La3PO7) 58572-33-1 60606-12-4, Erbium phosphate (Er3PO7) 87843-98-9, Gadolinium barium zincate (Gd2BaZnO5) 112872-87-4
(nephelauxetic effect in lanthanide ion-doped)

=> d 122 1-40 ti

L22 ANSWER 1 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Apparatus for analyzing mixtures of gases

L22 ANSWER 2 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Preparation of 1,1-bis(4-aminophenyl)-3-alkylcyclohexanes from cashew nut shell liquid

L22 ANSWER 3 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Acetylene chemoselective hydrogenation catalyst with segregated palladium skin for the manufacture of ethylene

L22 ANSWER 4 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Dielectric ceramic composition for laminated ceramic parts

L22 ANSWER 5 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Dielectric ceramic compositions for high frequency use

L22 ANSWER 6 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Method and apparatus for analyzing mixtures of gases

L22 ANSWER 7 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Apparatus for analyzing mixtures of gases

L22 ANSWER 8 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Nonwoven fabrics and porous film containing inorganic type antibacterial agents with good safety and deodorant property

L22 ANSWER 9 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Zinc anode for alkaline secondary batteries

- ✓
- L22 ANSWER 10 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Method and apparatus for analyzing mixtures of gases
- L22 ANSWER 11 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Mechanisms for the glycothermal synthesis of mixed oxides
- L22 ANSWER 12 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Supported catalysts for the selective hydrogenation of alkynes and dienes
- L22 ANSWER 13 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Preparation of an improved catalyst containing zeolite treated with boron trichloride and its use in conversion of hydrocarbons
- L22 ANSWER 14 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Hydrocarbon hydrogenation and catalyst therefor
- L22 ANSWER 15 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Haze-free glazed panel with thermally stable multilayer coating
- L22 ANSWER 16 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Zeolite material, a method of making such improved zeolite material and the use thereof in the conversion of nonaromatic hydrocarbons to aromatics and light olefins
- L22 ANSWER 17 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Transparent, high strain point spinel glass-ceramics
- L22 ANSWER 18 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Composition useful for hydrocarbon conversion process and preparation thereof
- L22 ANSWER 19 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Palladium-based selective catalysts for hydrogenation of alkadienes and alkynes in olefinic processing streams
- L22 ANSWER 20 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Preparation of nano-composite oxides by gas evaporation technique
- L22 ANSWER 21 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Hydrogenation of diolefins to monoolefins and catalysts therefor
- L22 ANSWER 22 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Sorbents for the removal of cyclopentadiene from dicyclopentadiene
- L22 ANSWER 23 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Microstructure and optical absorption spectra of transparent

glass-ceramics containing zinc **aluminate**:chromium(3+)

- L22 ANSWER 24 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Optical properties of materials for optical amplifiers at 1.3 .mu.M
- L22 ANSWER 25 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Dehydrogenation catalyst preparation
- L22 ANSWER 26 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Removal of trialkyl arsine from fluids
- L22 ANSWER 27 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Manufacture of alumina-based ceramics, the ceramics obtained, and their use as powdered or bonded abrasives and as cutting tools
- L22 ANSWER 28 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Catalytic reforming
- L22 ANSWER 29 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Solid phase reactions between zinc, titanium, and aluminum oxides and the properties of materials based on their compositions
- L22 ANSWER 30 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Thermodynamics of formation of simple spinels
- L22 ANSWER 31 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Crystal chemistry and some magnetic properties of mixed **metal oxides** with spinel structure
- L22 ANSWER 32 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Order/disorder and infrared absorption. IV. The absorption of some **metal oxides** with spinel structure
- L22 ANSWER 33 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Dysprosium oxide ceramics
- L22 ANSWER 34 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Low-temperature heat capacities of copper ferrites (with a summary of entropies at 298.15.degree.K. of spinel minerals)
- L22 ANSWER 35 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI Some features of the motion of rapid current carriers in polar crystals
- L22 ANSWER 36 OF 40 HCA COPYRIGHT 2005 ACS on STN
TI New pigments
- L22 ANSWER 37 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Constitution and color of inorganic solids

L22 ANSWER 38 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Color and constitution of inorganic compounds

L22 ANSWER 39 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Oxidic semiconductors

L22 ANSWER 40 OF 40 HCA COPYRIGHT 2005 ACS on STN

TI Physical and crystallographical properties of some spinels

=> d 122 1,6,7,10,28 cbib abs hitstr hitind

L22 ANSWER 1 OF 40 HCA COPYRIGHT 2005 ACS on STN

141:300286 Apparatus for analyzing mixtures of gases. Morris, Patricia A.; McCarron, Eugene Michael, III; Piovoso, Michael Joseph (E.I. Dupont de Nemours and Company, USA). PCT Int. Appl. WO 2004086021 A2 20041007, 89 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-US9537 20040426. PRIORITY: US 2003-PV457754 20030326; US 2003-PV457761 20030326.

AB Disclosed herein is a an app. for analyzing, sensing and/or measuring information related to the presence and/or concns. of various gases, including NOx, ammonia, hydrocarbons, carbon monoxide and oxygen, in a multi-component gas system using chem. sensors and chem. sensor arrays. The sensors and sensor arrays use chemo/electro-active materials to analyze and/or detect the presence of gases.

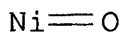
IT 1306-38-3, Ceria, uses 1313-96-8, Niobium oxide
1313-97-9, Neodymium oxide 1313-99-1, Nickel
oxide, uses 1314-13-2, Zinc oxide, uses 1314-35-8
, Tungsten oxide, uses 1314-61-0, Tantalum oxide
1344-28-1, Alumina, uses 12024-21-4, Gallium oxide
12036-32-7, Praseodymium oxide 12651-25-1,
Titanium zinc oxide 13463-67-7, Titanium oxide, uses
39354-08-0, Aluminum nickel oxide
(app. for analyzing mixts. of gases)

RN 1306-38-3 HCA

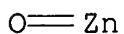
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)



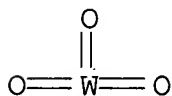
RN 1313-96-8 HCA
 CN Niobium oxide (Nb2O5) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1313-97-9 HCA
 CN Neodymium oxide (Nd2O3) (7CI, 8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1313-99-1 HCA
 CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)



RN 1314-13-2 HCA
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 1314-35-8 HCA
 CN Tungsten oxide (WO3) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



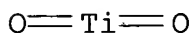
RN 1314-61-0 HCA
 CN Tantalum oxide (Ta2O5) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1344-28-1 HCA
 CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12024-21-4 HCA
 CN Gallium oxide (Ga2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12036-32-7 HCA
 CN Praseodymium oxide (Pr2O3) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Pr	2	7440-10-0

RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 39354-08-0 HCA
 CN Aluminum nickel oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Al	x	7429-90-5

IC ICM G01N027-00
 CC 59-1 (Air Pollution and Industrial Hygiene)
 IT **1306-38-3**, Ceria, uses **1313-96-8**, Niobium oxide
1313-97-9, Neodymium oxide **1313-99-1**, Nickel
 oxide, uses **1314-13-2**, Zinc oxide, uses **1314-35-8**
 , Tungsten oxide, uses **1314-61-0**, Tantalum oxide
 1327-33-9, Antimony oxide 1332-29-2, Tin oxide 1332-37-2, Iron
 oxide, uses **1344-28-1**, Alumina, uses 1344-70-3, Copper
 oxide 7439-89-6, Iron, uses 11118-57-3, Chromium oxide
 11129-60-5, Manganese oxide **12024-21-4**, Gallium oxide
12036-32-7, Praseodymium oxide **12651-25-1**,
 Titanium zinc oxide 12673-86-8, Antimony tin oxide 12789-64-9,
 Iron titanium oxide **13463-67-7**, Titanium oxide, uses
 37268-49-8, Niobium titanium oxide 37268-50-1, Niobium tungsten
 oxide 39336-05-5, Chromium yttrium oxide **39354-08-0**,
 Aluminum nickel oxide 39432-73-0, Chromium manganese oxide
 54990-20-4, Manganese titanium oxide 59141-86-5, Copper lanthanum
 oxide 60866-78-6, Tantalum titanium oxide 100438-91-3, Nickel
 zinc oxide 130025-53-5, Iron lanthanum oxide 152417-16-8, Copper
 gallium oxide 215023-19-1, Neodymium strontium oxide
 244049-38-5, Gallium titanium zinc oxide 415707-67-4, Niobium
 titanium zinc oxide

(app. for analyzing mixts. of gases)

L22 ANSWER 6 OF 40 HCA COPYRIGHT 2005 ACS on STN

140:116229 Method and apparatus for analyzing mixtures of gases.

Morris, Patricia A. (E. I. Du Pont De Nemours and Company, USA).

U.S. Pat. Appl. Publ. US 2004013571 A1 20040122, 27 pp.,

Cont.-in-part of U.S. Ser. No. 977,791. (English). CODEN: USXXCO.

APPLICATION: US 2002-117472 20020405. PRIORITY: US 2000-PV240619

20001016; US 2000-PV246946 20001109; US 2001-977791 20011015.

AB Disclosed herein is a method and app. for analyzing, sensing and measuring information related to the concns. of various gases, including NO_x, hydrocarbons, carbon monoxide and oxygen, in a multi-component gas system using chem. sensors and chem. sensor arrays. The sensors and sensor arrays use chemo/electro-active materials to analyze and detect the presence of gases.

IT 1309-37-1, Ferric oxide, uses 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide (NiO), uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten oxide (WO₃), uses 1314-37-0, Ytterbium oxide (Yb₂O₃) 1314-61-0, Tantalum oxide 1317-38-0, Cupric oxide, uses 1317-39-1, Cuprous oxide, uses 11137-98-7, Aluminum magnesium oxide 12024-21-4, Gallium oxide 12036-32-7, Praseodymium oxide 12036-43-0, Titanium zinc oxide (TiZnO₃) 12036-44-1, Thulium oxide (Tm₂O₃) 12037-29-5, Praseodymium oxide (Pr₆O₁₁) 12651-25-1, Titanium zinc oxide 13463-67-7, Titanium oxide (TiO₂), uses 18282-10-5, Tin oxide (SnO₂) 39354-08-0, Aluminum nickel oxide (method and app. for analyzing mixts. of gases using semiconductor gas sensor arrays)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1313-96-8 HCA

CN Niobium oxide (Nb₂O₅) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1313-99-1 HCA

CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)

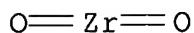
Ni=O

RN 1314-13-2 HCA

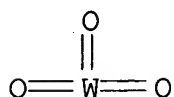
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O=Zn

RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1314-35-8 HCA
 CN Tungsten oxide (WO₃) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



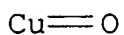
RN 1314-37-0 HCA
 CN Ytterbium oxide (Yb₂O₃) (6CI, 8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

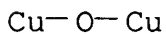
RN 1314-61-0 HCA
 CN Tantalum oxide (Ta₂O₅) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1317-38-0 HCA
 CN Copper oxide (CuO) (8CI, 9CI) (CA INDEX NAME)



RN 1317-39-1 HCA
 CN Copper oxide (Cu₂O) (8CI, 9CI) (CA INDEX NAME)



RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12024-21-4 HCA
 CN Gallium oxide (Ga₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12036-32-7 HCA
 CN Praseodymium oxide (Pr₂O₃) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Pr	2	7440-10-0

RN 12036-43-0 HCA

CN Titanium zinc oxide (TiZnO₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Zn	1	7440-66-6
Ti	1	7440-32-6

RN 12036-44-1 HCA

CN Thulium oxide (Tm₂O₃) (6CI, 8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12037-29-5 HCA

CN Praseodymium oxide (Pr₆O₁₁) (6CI, 8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

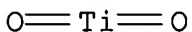
RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 18282-10-5 HCA

CN Tin oxide (SnO₂) (8CI, 9CI) (CA INDEX NAME)



RN 39354-08-0 HCA

CN Aluminum nickel oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O	x	17778-80-2
Ni	x	7440-02-0
Al	x	7429-90-5

IC ICM G01N031-12

ICS G01N027-00

INCL 422094000; 422098000

CC 59-1 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 76

IT **1309-37-1**, Ferric oxide, uses **1313-96-8**, Niobium oxide **1313-99-1**, Nickel oxide (NiO), uses **1314-13-2**, Zinc oxide, uses **1314-23-4**, Zirconium oxide, uses **1314-35-8**, Tungsten oxide (WO₃), uses **1314-37-0**, Ytterbium oxide (Yb₂O₃) **1314-61-0**, Tantalum oxide **1317-38-0**, Cupric oxide, uses **1317-39-1**, Cuprous oxide, uses 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1344-41-8, Lead tin oxide 1344-70-3, Copper oxide 10101-58-3, Cobalt tungsten oxide 11075-35-7, Titanium vanadium oxide 11104-61-3, Cobalt oxide 11104-65-7, Chromium copper oxide 11113-58-9, Cobalt vanadium oxide 11113-84-1, Ruthenium oxide 11115-97-2, Iron molybdenum oxide 11126-28-6, Titanium tungsten oxide 11129-18-3, Cerium oxide 11129-48-9, Iron zinc oxide **11137-98-7**, Aluminum magnesium oxide 12009-18-6, Barium tin oxide 12013-46-6, Calcium tin oxide 12018-79-0, Copper iron oxide 12022-43-4, Iron lanthanum oxide (FeLaO₃) 12022-71-8, Iron titanium oxide (FeTiO₃) **12024-21-4**, Gallium oxide 12032-74-5, Manganese titanium oxide (MnTiO₃) 12034-89-8, Strontium niobate (SrNb₂O₆) **12036-32-7**, Praseodymium oxide **12036-43-0**, Titanium zinc oxide (TiZnO₃) **12036-44-1**, Thulium oxide (Tm₂O₃) **12037-29-5**, Praseodymium oxide (Pr₆O₁₁) 12053-92-8, Copper lanthanum oxide (CuLa₂O₄) 12060-59-2, Strontium titanate (SrTiO₃) 12068-51-8, Aluminum magnesium oxide (Al₂MgO₄) 12168-54-6, Iron nickel oxide (Fe₂NiO₄) 12263-02-4, Copper iron manganese oxide (CuFeMnO₄) 12517-25-8, Copper gallium oxide (CuGaO₂) 12527-64-9, Copper strontium oxide (Cu₂SrO₂) 12610-16-1, Lead molybdenum oxide 12626-96-9, Nickel niobium oxide 12643-01-5, Cerium vanadium oxide 12651-22-8, Tin tungsten oxide **12651-25-1**, Titanium zinc oxide 12672-48-9, Chromium silicon oxide 12673-59-5, Niobium strontium oxide 12673-86-8, Antimony tin oxide 12673-88-0, Molybdenum tin oxide 12678-40-9, Aluminum iron oxide 12687-47-7, Chromium nickel oxide 12707-85-6, Iron nickel oxide 12738-08-8, Molybdenum titanium oxide 12771-04-9, Iron tungsten oxide 12777-45-6, Bismuth tin oxide 12777-52-5, Chromium strontium titanium oxide 12777-55-8,

Cobalt tin oxide 12777-79-6, Iron tin oxide 12777-94-5, Chromium lanthanum oxide 12778-05-1, Nickel tin oxide 12789-64-9, Iron titanium oxide 12795-57-2, Strontium titanium oxide 13463-67-7, Titanium oxide (TiO₂), uses 13530-56-8, Aluminum vanadium oxide (AlVO₄) 13597-19-8, Cerium vanadium oxide (CeVO₄) 15578-31-1, Vanadium zinc oxide (V₂Zn₂O₇) 18282-10-5, Tin oxide (SnO₂) 26110-64-5, Copper iron oxide (CuFeO₄) 37220-25-0, Aluminum titanium oxide 37267-30-4, Chromium manganese oxide (CrMnO₃) 37268-49-8, Niobium titanium oxide 37268-50-1, Niobium tungsten oxide 37321-15-6, Nickel silicon oxide 37323-29-8, Niobium strontium tungsten oxide 37349-60-3, Tantalum tin oxide 37368-09-5, Titanium zirconium oxide 37368-10-8, Aluminum vanadium oxide 39290-95-4, Tungsten zirconium oxide 39322-06-0, Tungsten zinc oxide 39336-05-5, Chromium yttrium oxide 39345-88-5, Niobium zirconium oxide 39354-08-0, Aluminum nickel oxide 39361-81-4, Iron zirconium oxide 39361-86-9, Nickel zirconium oxide 39406-95-6, Cerium titanium oxide 39432-73-0, Chromium manganese oxide 39455-59-9, Cobalt zinc oxide 39467-15-7, Silicon tungsten oxide 39467-17-9, Tin zinc oxide 50922-29-7, Chromium zinc oxide 50925-72-9, Bismuth zinc oxide 50926-11-9, Indium tin oxide 51312-37-9, Rubidium tungsten oxide 51683-41-1, Vanadium zirconium oxide 52337-09-4, Silicon titanium oxide 53125-59-0, Antimony zinc oxide 53801-91-5, Chromium titanium oxide 53807-65-1, Zinc zirconium oxide 53809-60-2, Calcium zinc oxide 54242-92-1, Barium zinc oxide 54413-02-4, Niobium potassium oxide 54427-12-2, Lead zinc oxide 54990-20-4, Manganese titanium oxide 54991-58-1, Aluminum chromium oxide 55030-80-3, Gallium lanthanum oxide 56997-34-3, Cadmium tin oxide 56997-35-4, Gallium iron oxide 57348-59-1, Barium copper oxide 58500-36-0, Iron niobium oxide 58500-37-1, Manganese niobium oxide 58500-40-6, Silicon tin oxide 58834-07-4, Cerium niobium oxide 58984-36-4, Cobalt lanthanum oxide 59141-86-5, Copper lanthanum oxide 59656-34-7, Cerium iron oxide 59707-45-8, Lanthanum manganese sodium oxide 59707-46-9, Lanthanum manganese strontium oxide 60842-54-8, Iron niobium titanium oxide 60861-12-3, Copper nickel oxide 60861-14-5, Manganese zinc oxide 60866-78-6, Tantalum titanium oxide 61583-60-6, Molybdenum zinc oxide 64417-98-7, Yttrium zirconium oxide 65232-86-2, Copper iron manganese oxide 65453-20-5, Cobalt magnesium oxide 65453-29-4, Copper titanium oxide 65983-12-2, Vanadium zinc oxide 66579-84-8, Cobalt copper oxide 67182-14-3, Bismuth ruthenium oxide 74463-16-4, Barium copper oxide (Ba₂Cu₂O₅) 77649-65-1, Molybdenum rubidium oxide 100438-91-3, Nickel zinc oxide 102055-22-1, Aluminum magnesium zinc oxide 108658-67-9, Copper lanthanum strontium oxide 111569-09-6, Scandium zirconium oxide 115493-79-3, Copper lead oxide 119000-05-4, Copper strontium oxide 119325-55-2, Barium copper oxide (BaCuO_{2.5}) 123213-50-3, Tin zirconium oxide

127031-04-3, Gallium tin oxide 127989-52-0, Manganese tin oxide
130025-53-5, Iron lanthanum oxide 131064-29-4, Copper zinc oxide
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Ruthenium zinc oxide 134883-93-5, Copper zirconium oxide
139920-08-4, Tin titanium oxide 141618-04-4, Ruthenium tin oxide
144972-85-0, Barium copper titanium oxide 145055-25-0, Strontium
titanium vanadium oxide 147182-48-7, Titanium zinc oxide
(Ti_{0.2}Zn_{0.8}O_{1.2}) 149661-61-0, Tantalum zirconium oxide
149887-77-4, Copper tin oxide 152417-16-8, Copper gallium oxide
154104-21-9, Cobalt nickel zirconium oxide 156202-38-9, Calcium
cerium zirconium oxide 157822-53-2, Aluminum silicon vanadium
oxide 158970-04-8, Manganese strontium titanium oxide
159747-44-1, Silicon zinc oxide 173478-78-9, Cobalt nickel
titanium oxide 174420-43-0, Manganese yttrium oxide 175615-66-4,
Iron tungsten zirconium oxide 184588-38-3, Iron strontium titanium
oxide 188840-02-0, Nickel strontium titanium oxide 196820-06-1,
Cobalt lead zinc oxide 236103-74-5, Cobalt lead oxide
237750-29-7, Nickel yttrium oxide 244049-38-5, Gallium titanium
zinc oxide 251973-57-6, Iron tantalum titanium oxide
267225-50-3, Cobalt niobium oxide 331412-51-2, Cadmium zinc oxide
371789-91-2, Tin tungsten zinc oxide 415707-58-3, Cobalt germanium
oxide 415707-59-4, Copper sodium oxide 415707-60-7, Germanium
niobium oxide 415707-61-8, Germanium titanium oxide 415707-62-9,
Ruthenium tungsten oxide 415707-63-0, Tantalum zinc oxide
415707-64-1, Cobalt lead tin oxide 415707-65-2, Iron lead zinc
oxide 415707-66-3, Lead molybdenum zinc oxide 415707-67-4,
Niobium titanium zinc oxide 415707-68-5, Strontium titanium zinc
oxide 415707-69-6, Titanium tungsten zirconium oxide
415707-70-9, Copper iron manganese oxide (CuFe₂MnO₄)
(method and app. for analyzing mixts. of gases using
semiconductor gas sensor arrays)

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139:311278 Apparatus for analyzing mixtures of gases. Morris, Patricia
A. (E. I. Du Pont de Nemours & Co., USA). PCT Int. Appl. WO
2003087811 A1 20031023, 98 pp. DESIGNATED STATES: W: AE, AG, AL,
AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,
DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM,
ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR,
GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.
(English). CODEN: PIXXD2. APPLICATION: WO 2002-US12839 20020405.

AB Disclosed herein is a method and app. for analyzing, sensing and
measuring information related to the concns. of various gases,
including NO_x, hydrocarbons, carbon monoxide and oxygen, in a
multi-component gas system using chem. sensor arrays. The sensors

arrays use chemo-electro-active materials to analyze and detect the presence of gases.

IT 1309-37-1, Ferric oxide, uses 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide (NiO), uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten oxide (WO₃), uses 1314-37-0, Ytterbium oxide (Yb₂O₃) 1314-61-0, Tantalum oxide 1317-38-0, Cupric oxide, uses 1317-39-1, Cuprous oxide, uses 11137-98-7, Aluminum magnesium oxide 12024-21-4, Gallium oxide 12036-32-7, Praseodymium oxide 12036-43-0, Titanium zinc oxide (TiZnO₃) 12036-44-1, Thulium oxide (Tm₂O₃) 12037-29-5, Praseodymium oxide (Pr₆O₁₁) 12651-25-1, Titanium zinc oxide 13463-67-7, Titanium oxide (TiO₂), uses 18282-10-5, Tin oxide (SnO₂) 39354-08-0, Aluminum nickel oxide
(method and app. for analyzing mixts. of gases using semiconductor gas sensor arrays)

RN 1309-37-1 HCA
CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1313-96-8 HCA
CN Niobium oxide (Nb₂O₅) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 1313-99-1 HCA
CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)

Ni=O

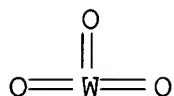
RN 1314-13-2 HCA
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O=Zn

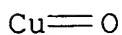
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

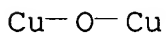
RN 1314-35-8 HCA
CN Tungsten oxide (WO₃) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 1314-37-0 HCA
 CN Ytterbium oxide (Yb₂O₃) (6CI, 8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1314-61-0 HCA
 CN Tantalum oxide (Ta₂O₅) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1317-38-0 HCA
 CN Copper oxide (CuO) (8CI, 9CI) (CA INDEX NAME)



RN 1317-39-1 HCA
 CN Copper oxide (Cu₂O) (8CI, 9CI) (CA INDEX NAME)



RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12024-21-4 HCA
 CN Gallium oxide (Ga₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12036-32-7 HCA
 CN Praseodymium oxide (Pr₂O₃) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	3	17778-80-2
Pr	2	7440-10-0

RN 12036-43-0 HCA
 CN Titanium zinc oxide (TiZnO₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Zn	1	7440-66-6
Ti	1	7440-32-6

RN 12036-44-1 HCA

CN Thulium oxide (Tm₂O₃) (6CI, 8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12037-29-5 HCA

CN Praseodymium oxide (Pr₆O₁₁) (6CI, 8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

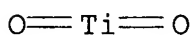
RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

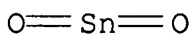
RN 13463-67-7 HCA

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 18282-10-5 HCA

CN Tin oxide (SnO₂) (8CI, 9CI) (CA INDEX NAME)



RN 39354-08-0 HCA

CN Aluminum nickel oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Al	x	7429-90-5

IC ICM G01N033-00

ICS G01N027-12

CC 59-1 (Air Pollution and Industrial Hygiene)
IT **1309-37-1**, Ferric oxide, uses **1313-96-8**, Niobium
oxide **1313-99-1**, Nickel oxide (NiO), uses
1314-13-2, Zinc oxide, uses **1314-23-4**, Zirconium
oxide, uses **1314-35-8**, Tungsten oxide (WO₃), uses
1314-37-0, Ytterbium oxide (Yb₂O₃) **1314-61-0**,
Tantalum oxide **1317-38-0**, Cupric oxide, uses
1317-39-1, Cuprous oxide, uses 1332-29-2, Tin oxide
1332-37-2, Iron oxide, uses 1344-41-8, Lead tin oxide 1344-70-3,
Copper oxide 10101-58-3, Cobalt tungsten oxide 11075-35-7,
Titanium vanadium oxide 11104-61-3, Cobalt oxide 11104-65-7,
Chromium copper oxide 11113-58-9, Cobalt vanadium oxide
11113-84-1, Ruthenium oxide 11115-97-2, Iron molybdenum oxide
11126-28-6, Titanium tungsten oxide 11129-18-3, Cerium oxide
11129-48-9, Iron zinc oxide **11137-98-7**, Aluminum magnesium
oxide 12009-18-6, Barium tin oxide 12013-46-6, Calcium tin oxide
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12024-21-4, Gallium oxide 12032-74-5, Manganese titanium
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12036-32-7, Praseodymium oxide **12036-43-0**,
Titanium zinc oxide (TiZnO₃) **12036-44-1**, Thulium oxide
(Tm₂O₃) **12037-29-5**, Praseodymium oxide (Pr₆O₁₁)
12053-92-8, Copper lanthanum oxide (CuLa₂O₄) 12060-59-2, Strontium
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(CuGaO₂) 12527-64-9, Copper strontium oxide (Cu₂SrO₂)
12610-16-1, Lead molybdenum oxide 12626-96-9, Nickel niobium oxide
12643-01-5, Cerium vanadium oxide 12651-22-8, Tin tungsten oxide
12651-25-1, Titanium zinc oxide 12672-48-9, Chromium
silicon oxide 12673-59-5, Niobium strontium oxide 12673-86-8,
Antimony tin oxide 12673-88-0, Molybdenum tin oxide 12678-40-9,
Aluminum iron oxide 12687-47-7, Chromium nickel oxide
12707-85-6, Iron nickel oxide 12738-08-8, Molybdenum titanium
oxide 12771-04-9, Iron tungsten oxide 12777-45-6, Bismuth tin
oxide 12777-52-5, Chromium strontium titanium oxide 12777-55-8,
Cobalt tin oxide 12777-79-6, Iron tin oxide 12777-94-5, Chromium
lanthanum oxide 12778-05-1, Nickel tin oxide 12789-64-9, Iron
titanium oxide 12795-57-2, Strontium titanium oxide
13463-67-7, Titanium oxide (TiO₂), uses 13530-56-8,
Aluminum vanadium oxide (AlVO₄) 13597-19-8, Cerium vanadium oxide
(CeVO₄) 15578-31-1, Vanadium zinc oxide (V₂Zn₂O₇)
18282-10-5, Tin oxide (SnO₂) 26110-64-5, Copper iron oxide
(CuFeO₄) 37220-25-0, Aluminum titanium oxide 37267-30-4,
Chromium manganese oxide (CrMnO₃) 37268-49-8, Niobium titanium
oxide 37268-50-1, Niobium tungsten oxide 37321-15-6, Nickel
silicon oxide 37323-29-8, Niobium strontium tungsten oxide

37349-60-3, Tantalum tin oxide 37368-09-5, Titanium zirconium oxide 37368-10-8, Aluminum vanadium oxide 39290-95-4, Tungsten zirconium oxide 39322-06-0, Tungsten zinc oxide 39336-05-5, Chromium yttrium oxide 39345-88-5, Niobium zirconium oxide **39354-08-0**, Aluminum nickel oxide 39361-81-4, Iron zirconium oxide 39361-86-9, Nickel zirconium oxide 39406-95-6, Cerium titanium oxide 39432-73-0, Chromium manganese oxide 39455-59-9, Cobalt zinc oxide 39467-15-7, Silicon tungsten oxide 39467-17-9, Tin zinc oxide 50922-29-7, Chromium zinc oxide 50925-72-9, Bismuth zinc oxide 50926-11-9, Indium tin oxide 51312-37-9, Rubidium tungsten oxide 51683-41-1, Vanadium zirconium oxide 52337-09-4, Silicon titanium oxide 53125-59-0, Antimony zinc oxide 53801-91-5, Chromium titanium oxide 53807-65-1, Zinc zirconium oxide 53809-60-2, Calcium zinc oxide 54242-92-1, Barium zinc oxide 54413-02-4, Niobium potassium oxide 54427-12-2, Lead zinc oxide 54990-20-4, Manganese titanium oxide 54991-58-1, Aluminum chromium oxide 55030-80-3, Gallium lanthanum oxide 56997-34-3, Cadmium tin oxide 56997-35-4, Gallium iron oxide 57348-59-1, Barium copper oxide 58500-36-0, Iron niobium oxide 58500-37-1, Manganese niobium oxide 58500-40-6, Silicon tin oxide 58834-07-4, Cerium niobium oxide 58984-36-4, Cobalt lanthanum oxide 59141-86-5, Copper lanthanum oxide 59656-34-7, Cerium iron oxide 59707-45-8, Lanthanum manganese sodium oxide 59707-46-9, Lanthanum manganese strontium oxide 60842-54-8, Iron niobium titanium oxide 60861-12-3, Copper nickel oxide 60861-14-5, Manganese zinc oxide 60866-78-6, Tantalum titanium oxide 61583-60-6, Molybdenum zinc oxide 64417-98-7, Yttrium zirconium oxide 65232-86-2, Copper iron manganese oxide 65453-20-5, Cobalt magnesium oxide 65453-29-4, Copper titanium oxide 65983-12-2, Vanadium zinc oxide 66579-84-8, Cobalt copper oxide 67182-14-3, Bismuth ruthenium oxide 74463-16-4, Barium copper oxide (Ba₂Cu₂O₅) 77649-65-1, Molybdenum rubidium oxide 100438-91-3, Nickel zinc oxide 102055-22-1, Aluminum magnesium zinc oxide 108658-67-9, Copper lanthanum strontium oxide 111569-09-6, Scandium zirconium oxide 115493-79-3, Copper lead oxide 119000-05-4, Copper strontium oxide 119325-55-2, Barium copper oxide (BaCuO_{2.5}) 123213-50-3, Tin zirconium oxide 127031-04-3, Gallium tin oxide 127989-52-0, Manganese tin oxide 130025-53-5, Iron lanthanum oxide 131064-29-4, Copper zinc oxide 132084-94-7, Niobium strontium titanium oxide 133174-46-6, Ruthenium zinc oxide 134883-93-5, Copper zirconium oxide 139920-08-4, Tin titanium oxide 141618-04-4, Ruthenium tin oxide 144972-85-0, Barium copper titanium oxide 145055-25-0, Strontium titanium vanadium oxide 147182-48-7, Titanium zinc oxide (Ti_{0.2}Zn_{0.8}O_{1.2}) 149661-61-0, Tantalum zirconium oxide 149887-77-4, Copper tin oxide 152417-16-8, Copper gallium oxide 154104-21-9, Cobalt nickel zirconium oxide 156202-38-9, Calcium cerium zirconium oxide 157822-53-2, Aluminum silicon vanadium

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 oxide 415707-69-6, Titanium tungsten zirconium oxide
 415707-70-9, Copper iron manganese oxide (CuFe₂MnO₄)
 (method and app. for analyzing mixts. of gases using
 semiconductor gas sensor arrays)

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136:344788 Method and apparatus for analyzing mixtures of gases.

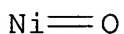
Morris, Patricia A. (E. I. Du Pont de Nemours & Co., USA). PCT Int.
 Appl. WO 2002033393 A2 20020425, 67 pp. DESIGNATED STATES: W: AE,
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 CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,
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 MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE,
 SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW;
 RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA,
 GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.
 (English). CODEN: PIXXD2. APPLICATION: WO 2001-US32138 20011015.
 PRIORITY: US 2000-PV240619 20001016; US 2000-PV246946 20001109.

AB Disclosed herein is a method and app. for analyzing, sensing and
 measuring the concns. of various gases, including NO_x, hydrocarbons,
 carbon monoxide and oxygen, in a multi-component gas system using
 chem. sensors and chem. sensor arrays. The sensors and sensor
 arrays use chemo/electro-active materials to analyze and detect the
 presence of gases.

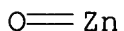
IT **1309-37-1**, Ferric oxide, uses **1313-96-8**, Niobium
 oxide **1313-99-1**, Nickel oxide (NiO), uses
1314-13-2, Zinc oxide, uses **1314-23-4**, Zirconium
 oxide, uses **1314-35-8**, Tungsten oxide (WO₃), uses
1314-37-0, Ytterbium oxide (Yb₂O₃) **1314-61-0**,
 Tantalum oxide **1317-38-0**, Cupric oxide, uses
1317-39-1, Cuprous oxide, uses **11137-98-7**,
 Aluminum magnesium oxide **12024-21-4**, Gallium oxide

12036-32-7, Praseodymium oxide 12036-43-0,
 Titanium zinc oxide (TiZnO₃) 12036-44-1, Thulium oxide
 (Tm₂O₃) 12037-29-5, Praseodymium oxide (Pr₆O₁₁)
 12651-25-1, Titanium zinc oxide 13463-67-7,
 Titanium oxide (TiO₂), uses 18282-10-5, Tin oxide (SnO₂)
 39354-08-0, Aluminum nickel oxide
 (method and app. for analyzing mixts. of gases using
 semiconductor gas sensor arrays)

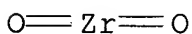
RN 1309-37-1 HCA
 CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1313-96-8 HCA
 CN Niobium oxide (Nb₂O₅) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1313-99-1 HCA
 CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)



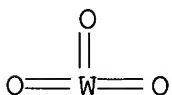
RN 1314-13-2 HCA
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



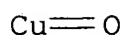
RN 1314-23-4 HCA
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



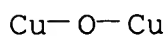
RN 1314-35-8 HCA
 CN Tungsten oxide (WO₃) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 1314-37-0 HCA
 CN Ytterbium oxide (Yb₂O₃) (6CI, 8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1314-61-0 HCA
 CN Tantalum oxide (Ta₂O₅) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 1317-38-0 HCA
 CN Copper oxide (CuO) (8CI, 9CI) (CA INDEX NAME)



RN 1317-39-1 HCA
 CN Copper oxide (Cu2O) (8CI, 9CI) (CA INDEX NAME)



RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 12024-21-4 HCA
 CN Gallium oxide (Ga2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12036-32-7 HCA
 CN Praseodymium oxide (Pr2O3) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Pr	2	7440-10-0

RN 12036-43-0 HCA
 CN Titanium zinc oxide (TiZnO3) (9CI) (CA INDEX NAME)

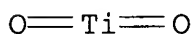
Component	Ratio	Component Registry Number
O	3	17778-80-2
Zn	1	7440-66-6
Ti	1	7440-32-6

RN 12036-44-1 HCA
 CN Thulium oxide (Tm2O3) (6CI, 8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 12037-29-5 HCA
 CN Praseodymium oxide (Pr6O11) (6CI, 8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12651-25-1 HCA
 CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

RN 13463-67-7 HCA
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



RN 18282-10-5 HCA
 CN Tin oxide (SnO₂) (8CI, 9CI) (CA INDEX NAME)



RN 39354-08-0 HCA
 CN Aluminum nickel oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Al	x	7429-90-5

IC ICM G01N027-00
 CC 59-1 (Air Pollution and Industrial Hygiene)
 IT **1309-37-1**, Ferric oxide, uses **1313-96-8**, Niobium oxide **1313-99-1**, Nickel oxide (NiO), uses **1314-13-2**, Zinc oxide, uses **1314-23-4**, Zirconium oxide, uses **1314-35-8**, Tungsten oxide (WO₃), uses **1314-37-0**, Ytterbium oxide (Yb₂O₃) **1314-61-0**, Tantalum oxide **1317-38-0**, Cupric oxide, uses **1317-39-1**, Cuprous oxide, uses 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1344-41-8, Lead tin oxide 1344-70-3, Copper oxide 10101-58-3, Cobalt tungsten oxide 11075-35-7, Titanium vanadium oxide 11104-61-3, Cobalt oxide 11104-65-7, Chromium copper oxide 11113-58-9, Cobalt vanadium oxide 11113-84-1, Ruthenium oxide 11115-97-2, Iron molybdenum oxide 11126-28-6, Titanium tungsten oxide 11129-18-3, Cerium oxide 11129-48-9, Iron zinc oxide **11137-98-7**, Aluminum magnesium

oxide 12009-18-6, Barium tin oxide 12013-46-6, Calcium tin oxide
12018-79-0, Copper iron oxide 12022-43-4, Iron lanthanum oxide
(FeLaO3) 12022-71-8, Iron titanium oxide (FeTiO3)
12024-21-4, Gallium oxide 12032-74-5, Manganese titanium
oxide (MnTiO3) 12034-89-8, Strontium niobate (SrNb2O6)
12036-32-7, Praseodymium oxide **12036-43-0**,
Titanium zinc oxide (TiZnO3) **12036-44-1**, Thulium oxide
(Tm2O3) **12037-29-5**, Praseodymium oxide (Pr6O11)
12053-92-8, Copper lanthanum oxide (CuLa2O4) 12060-59-2, Strontium
titanate (SrTiO3) 12068-51-8, Aluminum magnesium oxide (Al2MgO4)
12168-54-6, Iron nickel oxide (Fe2NiO4) 12263-02-4, Copper iron
manganese oxide (CuFeMnO4) 12517-25-8, Copper gallium oxide
(CuGaO2) 12527-64-9, Copper strontium oxide (Cu2SrO2)
12610-16-1, Lead molybdenum oxide 12626-96-9, Nickel niobium oxide
12643-01-5, Cerium vanadium oxide 12651-22-8, Tin tungsten oxide
12651-25-1, Titanium zinc oxide 12672-48-9, Chromium
silicon oxide 12673-59-5, Niobium strontium oxide 12673-86-8,
Antimony tin oxide 12673-88-0, Molybdenum tin oxide 12678-40-9,
Aluminum iron oxide 12687-47-7, Chromium nickel oxide
12707-85-6, Iron nickel oxide 12738-08-8, Molybdenum titanium
oxide 12771-04-9, Iron tungsten oxide 12777-45-6, Bismuth tin
oxide 12777-52-5, Chromium strontium titanium oxide 12777-55-8,
Cobalt tin oxide 12777-79-6, Iron tin oxide 12777-94-5, Chromium
lanthanum oxide 12778-05-1, Nickel tin oxide 12789-64-9, Iron
titanium oxide 12795-57-2, Strontium titanium oxide
13463-67-7, Titanium oxide (TiO2), uses 13530-56-8,
Aluminum vanadium oxide (AlVO4) 13597-19-8, Cerium vanadium oxide
(CeVO4) 15578-31-1, Vanadium zinc oxide (V2Zn2O7)
18282-10-5, Tin oxide (SnO2) 26110-64-5, Copper iron oxide
(CuFeO4) 37220-25-0, Aluminum titanium oxide 37267-30-4,
Chromium manganese oxide (CrMnO3) 37268-49-8, Niobium titanium
oxide 37268-50-1, Niobium tungsten oxide 37321-15-6, Nickel
silicon oxide 37323-29-8, Niobium strontium tungsten oxide
37349-60-3, Tantalum tin oxide 37368-09-5, Titanium zirconium
oxide 37368-10-8, Aluminum vanadium oxide 39290-95-4, Tungsten
zirconium oxide 39322-06-0, Tungsten zinc oxide 39336-05-5,
Chromium yttrium oxide 39345-88-5, Niobium zirconium oxide
39354-08-0, Aluminum nickel oxide 39361-81-4, Iron
zirconium oxide 39361-86-9, Nickel zirconium oxide 39406-95-6,
Cerium titanium oxide 39432-73-0, Chromium manganese oxide
39455-59-9, Cobalt zinc oxide 39467-15-7, Silicon tungsten oxide
39467-17-9, Tin zinc oxide 50922-29-7, Chromium zinc oxide
50925-72-9, Bismuth zinc oxide 50926-11-9, Indium tin oxide
51312-37-9, Rubidium tungsten oxide 51683-41-1, Vanadium zirconium
oxide 52337-09-4, Silicon titanium oxide 53125-59-0, Antimony
zinc oxide 53801-91-5, Chromium titanium oxide 53807-65-1, Zinc
zirconium oxide 53809-60-2, Calcium zinc oxide 54242-92-1,
Barium zinc oxide 54413-02-4, Niobium potassium oxide

54427-12-2, Lead zinc oxide 54990-20-4, Manganese titanium oxide
54991-58-1, Aluminum chromium oxide 55030-80-3, Gallium lanthanum
oxide 56997-34-3, Cadmium tin oxide 56997-35-4, Gallium iron
oxide 57348-59-1, Barium copper oxide 58500-36-0, Iron niobium
oxide 58500-37-1, Manganese niobium oxide 58500-40-6, Silicon
tin oxide 58834-07-4, Cerium niobium oxide 58984-36-4, Cobalt
lanthanum oxide 59141-86-5, Copper lanthanum oxide 59656-34-7,
Cerium iron oxide 59707-45-8, Lanthanum manganese sodium oxide
59707-46-9, Lanthanum manganese strontium oxide 60842-54-8, Iron
niobium titanium oxide 60861-12-3, Copper nickel oxide
60861-14-5, Manganese zinc oxide 60866-78-6, Tantalum titanium
oxide 61583-60-6, Molybdenum zinc oxide 64417-98-7, Yttrium
zirconium oxide 65232-86-2, Copper iron manganese oxide 65453-20
-5, Cobalt magnesium oxide 65453-29-4, Copper titanium oxide
65983-12-2, Vanadium zinc oxide 66579-84-8, Cobalt copper oxide
67182-14-3, Bismuth ruthenium oxide 74463-16-4, Barium copper
oxide (Ba₂Cu₂O₅) 77649-65-1, Molybdenum rutherfordium oxide
100438-91-3, Nickel zinc oxide 102055-22-1, Aluminum magnesium
zinc oxide 108658-67-9, Copper lanthanum strontium oxide
111569-09-6, Scandium zirconium oxide 115493-79-3, Copper lead
oxide 119000-05-4, Copper strontium oxide 119325-55-2, Barium
copper oxide (BaCuO_{2.5}) 123213-50-3, Tin zirconium oxide
127031-04-3, Gallium tin oxide 127989-52-0, Manganese tin oxide
130025-53-5, Iron lanthanum oxide 131064-29-4, Copper zinc oxide
132084-94-7, Niobium strontium titanium oxide 133174-46-6,
Ruthenium zinc oxide 134883-93-5, Copper zirconium oxide
139920-08-4, Tin titanium oxide 141618-04-4, Ruthenium tin oxide
144972-85-0, Barium copper titanium oxide 145055-25-0, Strontium
titanium vanadium oxide 147182-48-7, Titanium zinc oxide
(Ti_{0.2}Zn_{0.8}O_{1.2}) 149661-61-0, Tantalum zirconium oxide
149887-77-4, Copper tin oxide 152417-16-8, Copper gallium oxide
154104-21-9, Cobalt nickel zirconium oxide 156202-38-9, Calcium
cerium zirconium oxide 157822-53-2, Aluminum silicon vanadium
oxide 158970-04-8, Manganese strontium titanium oxide
159747-44-1, Silicon zinc oxide 173478-78-9, Cobalt nickel
titanium oxide 174420-43-0, Manganese yttrium oxide 175615-66-4,
Iron tungsten zirconium oxide 184588-38-3, Iron strontium titanium
oxide 188840-02-0, Nickel strontium titanium oxide 196820-06-1,
Cobalt lead zinc oxide 236103-74-5, Cobalt lead oxide
237750-29-7, Nickel yttrium oxide 244049-38-5, Gallium titanium
zinc oxide 251973-57-6, Iron tantalum titanium oxide
267225-50-3, Cobalt niobium oxide 331412-51-2, Cadmium zinc oxide
371789-91-2, Tin tungsten zinc oxide 415707-58-3, Cobalt germanium
oxide 415707-59-4, Copper sodium oxide 415707-60-7, Germanium
niobium oxide 415707-61-8, Germanium titanium oxide 415707-62-9,
Ruthenium tungsten oxide 415707-63-0, Tantalum zinc oxide
415707-64-1, Cobalt lead tin oxide 415707-65-2, Iron lead zinc
oxide 415707-66-3, Lead molybdenum zinc oxide 415707-67-4, .

Niobium titanium zinc oxide 415707-68-5, Strontium titanium zinc oxide 415707-69-6, Titanium tungsten zirconium oxide 415707-70-9, Copper iron manganese oxide (CuFe₂MnO₄) (method and app. for analyzing mixts. of gases using semiconductor gas sensor arrays)

L22 ANSWER 28 OF 40 HCA COPYRIGHT 2005 ACS on STN

104:91885 Catalytic reforming. Aldag, Arthur W., Jr. (Phillips Petroleum Co., USA). U.S. ✓US 4566967 A 19860128, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1985-708143 19850304.

AB A catalyst compn. is described for reforming a feedstock to increase the octane no. of gasoline produced from the feedstock. The catalyst, consisting essentially of ZnO and a spinel structure alumina, is prep'd. as a phys. mixt. of **Zn titanate** and a spinel structure alumina. The Zn present in the catalyst is insufficient for the formation of bulk Zn **aluminate**. A reforming process employing the catalyst is discussed.

IT **1314-13-2**, uses and miscellaneous
(catalyst contg., for petroleum reforming)

RN 1314-13-2 HCA

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O=Zn

IT **12651-25-1**

(mixt. of, with spinel structure alumina, in prepn. of petroleum reforming catalysts)

RN 12651-25-1 HCA

CN Titanium zinc oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Zn	x	7440-66-6
Ti	x	7440-32-6

IC ICM C10G035-06

INCL 208135000

CC 51-6 (Fossil Fuels, Derivatives, and Related Products)

ST petroleum reforming **zinc titanate** spinel

IT Petroleum refining catalysts
(reforming, spinel structure alumina-**zinc titanate**)

IT **1314-13-2**, uses and miscellaneous
(catalyst contg., for petroleum reforming)

IT **12651-25-1**

(mixt. of, with spinel structure alumina, in prepn. of petroleum reforming catalysts)